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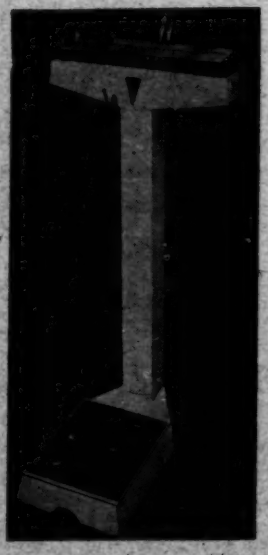

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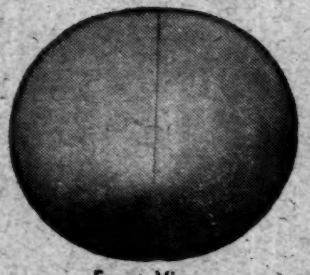

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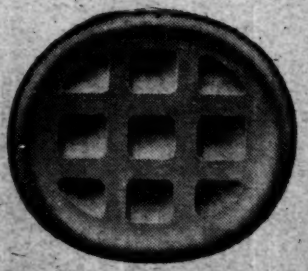

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BRITISH MEDICAL JOURNAL

LONDON SATURDAY AUGUST 30 1952

POSTGRADUATE EDUCATION

BY

Sir FRANCIS FRASER, M.D., F.R.C.P.

Director, British Postgraduate Medical Federation

Postgraduate medical education may be considered to be of two kinds with distinct purposes : (*a*) the education and training of medically qualified persons for their chosen careers ; and (*b*) their continuing education to enable them to keep abreast throughout their careers with the progress of ideas, knowledge, and technique in their branches of medicine. In this country these two kinds are included in the term " postgraduate education," but in America they are distinguished by the terms " graduate education " for the first, and " postgraduate education " for the second.

A. Education and Training for Careers

General Practice

Many more medically qualified persons enter general practice than any other branch of medicine, so that training for general practice is numerically the most important task of postgraduate education. Paradoxically it is the one for which there is least provision, and it is only in the last few years that there has been any official provision at all. Since the establishment of the National Health Service the Ministry of Health pays a grant of £700 a year and certain allowances to general practitioners in the Service, who have been approved by their local medical committees, in order that they may train a recently qualified person, who acts as trainee assistant for one year. General conditions for approval and for grant are stated by the Ministry, and local medical committees aided by representatives of the appropriate university take seriously their duty of assessing the applications from trainers.

The trainee assistant must not have been previously engaged in general practice in this country, and in future will at least have held pre-registration hospital appointments for one year before becoming a trainee assistant. At the end of his year of training he will be in a favourable position to seek an ordinary assistantship or partnership. Similar apprenticeships were arranged by private negotiation in the past, without any official sanction or grant, and this will undoubtedly continue, but the encouragement by the official scheme and its financial aid from public funds are a step forward, and the effects of the scheme on both the trainers and the trainees should enhance the efficiency and prestige of general practice to a continually increasing degree. The results should be carefully watched and the scheme modified in the light of experience.

Several medical schools now arrange for their final-year students to obtain first-hand practical experience of general practice. The results of these experiments will also be watched with interest.

Consultant Practice in the Clinical Specialties (Including Pathology)

The training of a clinical specialist covers as a rule a period of eight or more years after qualification before an appointment as a consultant can be obtained. This training is provided by junior hospital appointments, but it is necessary also, in order to obtain the more senior of the appointments that are required to complete the period of training, to gain a higher degree or diploma in the specialty. The hospital appointments are those of house-officer, registrar, and senior registrar, or their equivalents, and there are fewer registrar posts than house-officer posts and fewer senior registrars than registrars, so that there is competition and selection at all stages before a full training can be obtained. In general the programme consists of two years as a house-officer, which will include the compulsory year of provisional registration, followed by two years as a registrar and four or more years as a senior registrar. Appointments in the senior registrar grade are not likely to be gained unless the candidate has previously obtained an appropriate higher degree or diploma.

As all these appointments carry appropriate salaries no suitable candidates for a career as a consultant should be prevented by finance from obtaining the required education and training. He should, further, be able to work for the appropriate higher degree or diploma while holding these appointments. Many candidates, however, have difficulty in doing so and find it necessary to attend full-time courses of instruction before sitting the examinations, and so may need to maintain themselves and pay tuition fees for a period before seeking the more senior appointments necessary for the completion of their training. Hospital appointments vary greatly in the amount and quality of the supervision given by the senior staff, and in opportunities for discussion, for study, and for reading, so that courses of instruction that integrate and systematize the knowledge obtained by clinical practice are necessary to supplement the hospital appointments in the case of many candidates.

Courses of instruction, sufficient in number to meet the demand, are available in general medicine, general surgery, obstetrics and gynaecology, pathology, and all their special branches. They are not as a rule designed expressly to meet the needs of any special examination, and usually cover a period of ten weeks or a university term. They are provided by several medical schools and by the specialist institutes of the British Postgraduate Medical Federation in London and are of an advanced

educational standard, combining lectures, demonstrations, and discussion groups with practical work in wards, out-patient departments, and laboratories. In addition, many hospitals under the regional boards allow graduates to attend the practice of their hospitals, and some arrange a varying amount of formal instruction and lectures. These provide opportunities for candidates to acquire additional clinical experience and to fill gaps in their knowledge. Courses of these types are of special value to graduates from other countries who are here for a few years only and obtain much of their training by means of hospital appointments in their own countries, but come to this country for part of it and often obtain one or other of our specialist degrees or diplomas in the time during which they are able to remain here. Details of the courses available throughout the country are given elsewhere in this number of the *Journal*.

While holding the hospital appointments essential for his training for a career as a consultant, the graduate should have time and opportunities not only for reading and study for higher qualifications but should also, especially in the later years as senior registrar, be given opportunities to teach and be encouraged to engage in clinical research. His subsequent career will often be determined by his success at these. The necessary stimulus, encouragement, and help are more likely to be available at a teaching hospital, and it is desirable that arrangements should be developed whereby every senior registrar will spend part at least of his period of training in a teaching hospital.

Those who show promise at research can usually obtain scholarships, prizes, or grants to enable them to get further experience under guidance and supervision in a recognized centre of clinical research or in a department of one of the basic medical sciences, free from routine duties for the care of patients. The Medical Research Council has recently announced a policy of awarding an increased number of grants for clinical research.

Hygiene and Preventive Medicine

As the knowledge of the causes of ill-health is increasing rapidly the field of preventive medicine is widening, and this branch of medical practice is gaining greatly in importance. Studies of the environmental conditions influencing the efficiency of industrial and other workers have opened up new fields for specialists in preventive and community medicine. At the same time developments in industry have brought into use many new materials and chemical reagents, some of which are toxic, and if the conditions under which they are handled are not carefully controlled new causes of inefficiency and illness arise. There is thus in industrial hygiene a new and important special branch of preventive medicine.

The three main divisions of the National Health Service are general practice, specialist and hospital practice, and preventive medicine and public health. It is of the utmost importance for the efficiency of the Service that these three branches should co-operate, and that enough graduates should be encouraged to enter the preventive service and receive a training commensurate with its importance. This branch offers full-time careers both as medical officers of health and as medical officers to industrial undertakings, and in addition there are part-time appointments in both for general practitioners. The training required for such appointments consists in practical experience as assistants and of courses of instruction leading to the Diplomas in Public Health and in Industrial Hygiene. The latter diploma should be regarded as supplementary to the former, which is essential before appointments of any importance can be obtained. Most of the universities offer courses leading to a D.P.H., and the Conjoint Board, the Royal Faculty of Physicians and Surgeons, Glasgow, and the Society of Apothecaries offer a D.I.H. as the result of examination. The courses for the D.P.H. and for the D.I.H. extend over a full-time period of three terms, but by taking certain elective subjects for the D.P.H. the further time of study required for the D.I.H. can be shortened considerably. Candidates are not as a rule admitted to these courses until they have been qualified for two years, during which time they should have held hospital appointments or been engaged in general practice.

Not only is there no lack of opportunities for suitably qualified graduates in these branches of medicine but there should be no difficulty in finding places in the required courses of instruction, some of which have had to be cancelled for lack of sufficient applicants. Perhaps the need to maintain himself financially for a year, in contrast to the intending clinical specialist who can usually hold a hospital appointment while working for his postgraduate degree or diploma, is discouraging to the graduate who would otherwise seek a career in preventive medicine, and the Universities of Bristol, Durham, and Manchester now offer part-time courses for the D.P.H. covering a period of two years. If this experiment succeeds other universities may decide to make similar provisions.

The development of preventive medicine is especially necessary in tropical countries, and there are numerous openings for medical men in Government service, in industrial undertakings, and with missionary societies. Whether engaged primarily in teaching, administration, or clinical work a course of instruction leading to the Diploma in Tropical Medicine and Hygiene is almost essential. Courses available in London, Edinburgh, and Liverpool cover a period of five months of whole-time work, and candidates for the final part of the examination may be required to have had from one to two years of practical experience in the Tropics.

Basic Medical Sciences

Appointments in the basic medical sciences are, with a few exceptions, in departments of universities and medical schools. They require not only knowledge of the subject but also in all cases a capacity for research, and the duties include a considerable amount of teaching. There is no well-marked road to careers in these subjects. A medical qualification is not always obligatory but is usual and is of special value in appointments in medical schools. The training and experience that lead to appointments are extremely variable and individual. A medical graduate will usually hold junior hospital appointments in clinical branches for two or more years before being appointed as a demonstrator in anatomy, physiology, pharmacology, bacteriology, or biochemistry, and his success, especially in making use of his opportunities for research, will determine whether he finds his career in the basic sciences or not. Many eminent clinicians have spent one or more years in these subjects before continuing their training in one of the clinical specialties, and this is to be encouraged. Many graduates who subsequently find successful careers in one of the basic sciences have entered these departments with a research scholarship or grant to work possibly for a higher degree such as M.Sc., Ph.D., M.D., or M.S. In general, there are at present more appointments available in these subjects than suitable persons to fill them, but the road to a career is a hard one and a high standard of scholarship and research ability is required.

B. Continuing Education

No matter in what branch of medical activities a graduate is engaged it is essential that he should continue his education and training throughout the whole of his career. The progress of the fundamental sciences, and of their application to medicine, is so rapid that the practice of all branches is altering continually. The years of undergraduate study

are designed to give the graduate sufficient understanding of the principles of medicine to enable him to assess new knowledge with a critical mind and apply it with discrimination and a sound sense of values. During his undergraduate years and while undergoing postgraduate training for his career he will be in contact with more mature and experienced minds, and with their help he will be able to assess the value of the published work of others and discriminate between what is sound and what is merely plausible. With their help he is able to examine his own experiences with a critical judgment. It is when he leaves the teaching centre and has to rely to a great extent on his own judgment that the value of a good undergraduate and early postgraduate education becomes evident. But sooner or later he must regain contact with a centre of critical thought. By reading the medical journals regularly he may be aware of the trends of new knowledge and of its practical applications, but only the accumulated judgment of a number of critical observers can assess these wisely and justly.

Libraries

The first requirement, therefore, for continuing education is access to medical literature, and especially periodicals in general medicine and in the relevant special branch. Most medical graduates subscribe to one or two journals at least, and among them is usually one of the weeklies through which he obtains clues to new applications and new knowledge. He needs also to study the authorities in connexion with cases or incidents occurring in his day-to-day work, and this requires access to a library. The importance of this to continuing education and expanding experience cannot be exaggerated. Medical men living in a large city or in the neighbourhood of a medical school have ready access to a library through which any volume present in this country can be borrowed, but the more remote their situation from such a centre the more difficult it becomes, and enthusiasm and determination are required. A well-selected private collection of books and one or two periodicals meet most needs, but something more is required on occasions, and these may be frequent and important. The local hospital group should be able to supply the library needs of its area, and regional boards and hospital management committees are beginning to appreciate their responsibilities for library facilities, so that in course of time there should be available in every hospital group a run of journals sufficient for most needs, whether of general practitioners or specialists, and these local libraries, if associated with the larger libraries of medical schools, will be able to obtain any volume to which reference is sought.

Contact with Teaching Centre

The second requirement is contact and discussion with colleagues and teachers in order that new knowledge may be seen in a proper perspective and applied only after critical investigation. This is provided by local medical societies, specialist group conferences, and national and international conferences. Local medical societies vary greatly in their value and depend for their success usually on the enthusiasm and energy of one or two members. An energetic secretary can do much for the continuing education of the members and for keeping them in contact with the regional and teaching centre by inviting guest speakers to take part in the society's discussions. Under the regional plan of the National Health Service there are now in each region groups of specialists in each of the main branches of medicine and surgery, and a start has been made in some regions to hold periodic meetings of the regional consultants in each major specialty. These are held for the most part in the medical school of the region, but meetings in regional hospitals also have a stimulating influence. The gradual extension to all regions and specialties of this type of conference should prove of great value to regional consultants, their hospitals, and the health services.

Courses for General Practitioners

It is not easy for many busy general practitioners to attend the meetings of their local medical society, and in many places the meetings do not seem to meet their needs, so that other provisions are required for them. These must take a variety of forms to suit their different situations and needs. Whole-time intensive courses lasting one or two weeks at a centre at a distance from their area of practice meet the desires of some, but experience has shown a steady demand for those at Brighton, Edinburgh, and London only. They provide periodic contacts at wide intervals and do not meet the need for frequent contacts. Extended courses of one half-day a week covering a period of 5 to 10 weeks and held at a local centre are better for this purpose and do not require the absence of the doctor from his practice. Courses of this type have proved successful in many urban areas throughout the country. Short intensive week-end courses of two or three half-day sessions at the local hospital seem better suited to rural areas. In places where there is a strong local medical society well supported by the practitioners of the district these extended and week-end courses seem to be unnecessary. At Oxford selected teaching sessions at the Radcliffe Infirmary, though primarily for undergraduates, are open to the practitioners of the region, who may attend whichever of the subjects in the published programme appeal to them. This arrangement seems to suit the conditions of that region but may not be applicable to other parts of the country. The fees for all these forms of courses are paid by the Ministry of Health on behalf of National Health Service practitioners, who can claim certain allowances for travelling, etc., in addition.

None of these schemes seems to meet the general practitioners' needs for continuing education to the satisfaction of all, and some more effective way of enabling general practitioners to have constant contact with a hospital and its consultant staff is desirable. A few attempts are being made to give temporary appointments as clinical assistants, under supervision but without responsible duties, but so far these have not been successful, and it seems clear that a solution on these lines is full of difficulties. Experiments should be encouraged, and in due course the solution will, without doubt, be found.

Each university and medical school throughout the country has appointed a postgraduate medical education committee with a postgraduate dean or director of postgraduate education as its executive officer, and general practitioners are represented on these committees. The committees and directors are conscious of the importance of developing this aspect of postgraduate education, and conferences of the deans and directors are held at intervals in order to pool experiences, discuss the difficulties, and share in finding a solution.

Co-operation

A start has been made to bring together general practitioners and the specialists on the consultant staffs of hospitals, but little has so far been done to bring the medical officers of the preventive services into close association and co-operation with the other two groups. Talks on preventive and community medicine are being introduced into many courses for general practitioners, but so far these have not proved popular. Each hospital group has a responsibility for the health services in its area, and the medical school of each region has a responsibility for the continuing education of the medical men and women in the region, whatever branch of medicine they practise. Gradually, no doubt, the medical schools and teaching hospitals will make more provisions for bringing together the consultants of the region and will encourage a closer co-operation with the preventive services; the consultants in the regional hospitals will be stimulated to make similar arrangements for the area for which their hospital group is responsible, and so through courses, conferences, and

informal discussions the general practitioners, the preventive services, and hospital staffs will unite in a common effort for the health of the people.

Graduates from Overseas

The various purposes of postgraduate education and its different forms have so far been discussed from the point of view of graduates of the medical schools of this country, but for reasons that are academic, historical, geographic, and political we cannot avoid, and we do not wish to avoid, providing also for many graduates of medical schools in the Commonwealth and Empire and in foreign countries who seek part of their postgraduate education here. For the most part they seek training in the specialties. They come at various stages in their training and stay here for varying periods, many of them aiming at higher degrees or diplomas. All can be readily fitted into the general scheme. Because of the limited time they spend with us courses of instruction and attendance on the practice of hospitals are especially valuable to them, for they obtain their responsible hospital appointments for the most part in their own countries. Those who can remain here longer compete with our own graduates for suitable appointments, and are welcome colleagues. They gain something by sharing in our scheme of education and training, and our graduates gain immensely by contact with them. In this way postgraduate medical education is a fruitful source of understanding and friendship among the nations, and above all among the nations of the Commonwealth and Empire.

GRADUATE EDUCATION OF PHYSICIANS IN THE MEDICAL SERVICE OF THE UNITED STATES ARMY

BY

W. D. TIGERTT, M.D.

Lieutenant-Colonel, Medical Corps, United States Army; Assistant Commandant, The Army Medical Service Graduate School, Washington, D.C.

". . . The duty of an army medical officer is to preserve the efficiency of his command by guarding it against unsanitary influences and preventing disability from diseases that are known to be preventable. . . . To accomplish this in a satisfactory manner requires special training. Any well-educated medical man may be placed in the wards of a hospital and entrusted professionally with the care of its sick; but this, although of high importance, . . . is a minor duty compared with that of preventing or suppressing the sickness that would otherwise fill the wards. The medical graduate, equipped as a general practitioner, is not qualified for such duty. . . . (Therefore) each individual joining the corps should be trained sedulously in the lines of his future work. It is on the efficiency of the members of the Medical Department of our small Army that the care of the sick and wounded of the armies of the United States would chiefly devolve in the event of war. . . ."

These excerpts from the Report of the Surgeon General of the Army for 1894 (which described the establishment of the Army Medical School on June 24, 1893) announced the beginning of formal graduate education for physicians of the Regular Army and succinctly stated the reasons why such a programme was required. Although the tactics employed in the operation of the Army Medical Service of to-day may differ from those of sixty years ago, the strategy, so aptly stated by Surgeon-General George M. Sternberg in 1893, remains unchallenged. The aim to-day, as then, is to develop a small corps capable of handling the many duties during peace and yet so constituted as to permit a manifold expansion in time of emergency.

It is essential that the complexity of the framework of the Medical Service be recognized. To-day, the regular officer personnel of the Medical Service includes physicians, dentists, veterinarians, non-medical administrative officers, nurses, and allied scientists representing the various ancillary health fields. Educational patterns exist for each of these various groups, but it is possible in this presentation to discuss only the graduate educational programme for physicians. Even this must be concerned mainly with the formal courses given by the Army schools, since other aspects are highly individualized and not amenable to treatment in a condensed form.

Duties of the Medical Service

In the introductory paragraph reference is made to the contrast between the responsibilities of the regular medical officer and those of the physician in civil practice. Perhaps the simplest way to support this statement and at the same time state the aims of the educational programme is to delineate the several duties of the Medical Service. Although there is obvious overlapping, these fall into five broad categories.

The first, and most closely resembling civilian medicine, is the provision of high-quality professional care to the Army's routine load of sick and injured; this requires the development of officers professionally qualified in the medical specialties as well as officers competent in administration of the fixed hospitals.

The second, which differs to a large extent from its counterpart in civilian medicine, is the operation of the integral administration, including the logistical planning, supply, and procurement required to maintain the widespread units of the Medical Service.

The third, which, although represented to some extent in scattered facets of civilian medicine, has no exact counterpart, includes:

The selection and classification of military age personnel from the health point of view.

The practice of preventive medicine on a world-wide basis, with and without functioning civil public health services. The term "preventive medicine" is here used in its broadest connotations.

The treatment of the sick and injured and their rehabilitation as they occur under the primitive conditions of war.

The fourth is to maintain a programme of planning and research designed to evaluate the problems of the present and of the future, and to provide methods of continual improvement of existing policies and practices. During the past several years the Medical Service has expended some ten million dollars annually on the investigation of problems of military importance, the budgetary allocation to various areas of study being roughly proportional to the magnitude and urgency of the problem. These funds support both in-service research and projects sponsored by civilian agencies. The Army Medical Service Graduate School is the largest in-service agency supported by these funds and is responsible for the integration of the results derived therefrom.

The fifth, intimately related with the other duties, is to be prepared to expand the Medical Service in time of war, utilizing personnel drawn from civil life. To provide for such an expansion requires the continual operation of an educational programme for the members of the various contributing civilian professions in order that, in times of emergency, their awareness of military medicine is such that they may be rapidly mobilized into a smoothly functioning whole. For this mission the Army must develop well-qualified educators, for the expansion required is at least

fiftyfold ; and if war breaks out little or no opportunity will be available for training and education. Consequently, this must be accomplished by a constant programme reaching this personnel at undergraduate and graduate levels.

Educational Programme

To develop physicians of the Regular Army Medical Corps to meet these diverse requirements, it is apparent that no single programme of graduate education will suffice, and that a technological approach is *a priori* doomed to fail. Obviously, it cannot be expected that each member of the corps should perform all of these duties with equal facility. It is equally evident that the educational programme cannot be geared to produce individuals who are capable only of exercising a narrowly limited skill, be it concerned directly with patient care or with administration, no matter what heights of proficiency may be attained. (The proper source of such individualized, and perhaps extremely essential, talent is in the nation's pool of technically qualified man-power.) The ideal medical officer is a compromise between and a composite of these two extremes. He should have significant proficiency in at least one such field and have a considerable familiarity with all of the others. In an effort to develop these qualities, the first 12 years of a physician's career in the Regular Army constitutes a planned continuous graduate educational experience including periods of formal graduate education.

In-service formal education is given by two complementary institutions: the Medical Field Service School (San Antonio, Texas) and the Army Medical Service Graduate School (Washington, D.C.). Each of these schools is a component of a medical centre, thereby permitting direct access to the teaching material in the associated general hospital. Space does not permit a description of the organization of these schools, but a consideration of the courses described later will permit inferences concerning the type of faculty and physical plants. Total assigned personnel of the two schools is approximately 2,500, but it should be remembered that both carry considerable additional responsibilities. The faculty of each school is augmented by specially chosen visiting members drawn from military, governmental, or civilian sources ; thus gaining the benefits derived from presentations given by men with considerable experience and knowledge in a particular subject and providing, at the same time, a method of continuously creating an awareness of and a familiarity with the problems and methods of the Army Medical Service throughout the scientific man-power of the nation. Participation of this type permits the presentation of an educational programme that cannot be paralleled.

The New Entrant

On entry into the Regular Service, after completion of an internship, the medical officer ordinarily receives a several-months period of instruction at the Medical Field Service School, designed to acquaint him with the mission and methods of the Medical Service. This includes orientation on the overall structure of the Army and emphasizes the medical problems arising from this structure and the operating demands of a fighting force. Here he becomes acquainted with the care of a group of individuals as contrasted to the care of a single patient. The importance of preventive medicine is presented as well as the methods which exist for converting theory to practice. The significance of stress as a part of the normal military life is emphasized. Existing methods of care of the wounded under battlefield conditions form an important part of the programme, with a presentation of the evacuation chain, the duties of the medical officer at each stage, the principles of triage of the wounded, the use of subprofessional skills and of professional people in other than their specialty, and the difference between care of a single patient throughout his recovery from an injury by a single physician and the care of a surgical patient in a normal chain of evacuation by multiple physicians in several stations. Finally, he receives an introduction to the logistical support required to permit functioning of the Army Medical Service dealing primarily, as does almost the entirety of this programme, with the smaller components of armies.

During the next several years most of the officers will follow a programme not materially different in many aspects from the one they would follow if in civilian life, except that it usually will include periods of duty with troops or with units in combat. Residency training in the teaching hospitals or research laboratories of the Army (or in selected civilian hospitals) usually will be long enough to permit qualification, if desired by the officer, in one of the various specialty boards. At this point the individual officer has been out of medical school for four to eight years, variations being introduced by the route followed. This initial period is intended to provide medical personnel capable of meeting the day-to-day load of patient care and of functioning as a member of the Army team to care for the wounded in time of war. It, at the same time, places him on a par with his civilian confrères and provides a sound basis for his future development as an Army medical officer.

From this time forward, his continued education is on the basis of avowed interest and past performance weighed against the anticipated demands of the Service. This follows more or less well-defined career patterns, although there is no absolute finality to the selection made at any time.

Numbers Required

It is perhaps proper at this point to phrase a question which constantly faces those who control the input of students to this educational system : " Upon what basis is the number of students per level and area of training determined ?" It is obvious that a calculation of the exact requirements of ten years hence or of the percentage of individuals who will attain the final desired qualifications is unattainable, and that, in addition, the exigencies of the Service may, at any time, significantly interfere or delay attainment of any predetermined goals. There is also the ever-present mission of patient care, and the other day-to-day duties of the Medical Service, demanding a proportion of the total personnel ; thereby reducing the number available for formal training. These last-named requirements are partially met by maintaining a degree of flexibility as to timing in the programme. While it may seem that this approach to the problem, as stated, is " begging the question," it is hoped that perusal of the content and methods of the various courses will render this argument invalid.

The courses deal with technical subjects, and the numbers admitted to each are based on an estimate of requirements, however fallible, and it is intended that technical skill will be acquired. However, at the same time and covering the same subject-matter, there is the opportunity to develop in the maturing student the ability to think clearly, to have an inquiring mind, and to know how to seek an answer to those questions arising therefrom. These are qualities which cannot be outmoded. Viewed in this light, the original question and the admitted fallibility of the original estimates are of much less importance. The desideratum is to provide opportunity for a minimum of one year of formal graduate school training (other than intern or residency) for all members of the Regular Service, selecting those who appear most promising for prolonged and guided efforts.

Work of the Army Medical Service Graduate School

To provide a group capable of guiding the Army's medical education and research, a programme dealing with the basic sciences as they pertain to medical practice is given by the Army Medical Service Graduate School. The primary aim is to provide a solid working knowledge of biochemistry and physiology in a fashion which will permit utilization of the methods of the basic sciences in the daily care of patients, in the conduct of an investigative programme, or in any type of a broad educational effort. Given at this period of development of the physician, after he has had

opportunity to satisfy the almost universal overwhelming desire of most current American graduates to "specialize," most of the students have developed a keen appreciation of their lack of fundamental knowledge.

The scheduled programme runs for some six months, beginning each fall. Lectures and demonstrations are given only in the morning hours, while the afternoons are devoted to work, on a problem of the student's own selection, in the laboratories of the school or in the wards and clinics of the hospital. Students may remain assigned to the school for varying periods of time after completion of the didactic programme to continue work on their problems under a resident faculty adviser.

The subject material may be divided into three general categories. The initial section is a discussion of how the body as a whole utilizes and metabolizes the essential substances—namely, oxygen, water, electrolytes, carbohydrates, etc. In the second category the aberrations in the metabolism of the body as a whole, when affected by various modifying agents or situations such as bacterial invasion, heat and cold, effect of radiation and drugs, etc., is presented. This contrast of normal metabolism with the abnormal permits and requires a consideration of all of the basic sciences as they may apply to the subject under discussion. The last section of the course deals with a study of the systems, building on and integrating previous material.

For many years one of the responsibilities of the Army educational programme has been to present certain subjects not adequately covered in the ordinary medical curriculum. For example, in the early 1900s there was, of necessity, much emphasis on microbiology as well as on ophthalmology and radiology. To-day it is thought necessary to include material dealing with concepts of biometrics, the philosophy of mathematics, and the elements of genetics in the early part of the course, since the average medical graduate of five years ago is usually deficient in these subjects, deficiencies which show signs of rectification in present-day medical school programmes.

The research projects, which occupy approximately one-half of the student's time, deal usually with physiological or biochemical subjects of a widely varying nature. For many of the students this is a first exposure to investigation in which they serve as "senior" investigators. Emphasis is on the approach and the method employed. To most, during these months, comes an appreciation of the continuing nature of research as contrasted to experimentation.

This course permits the students to gain a perspective on the so-called "scientific methods" by having the representatives of various disciplines describe and correlate research data, show how the original question was defined, the method employed in the solution or attempted solution, the errors that were made, and the amount of credence that may be placed in the findings. At the same time the student is afforded the opportunity to experience, in a simplified form, some of the same type of undertaking. Not only does this approach afford the opportunity to instruct by precept, but the instruction utilizes a language and exploits a technical skill gained by personal experience, thereby resulting in a bilateral form of intellectual stimulation and the development of physicians capable of education and research endeavours.

Another formal programme given to certain medical officers at approximately this same level of development—that is, four to eight years of service—is intended to provide leaders in the manifold aspects of preventive medicine.

Preventive Medicine

It has been noted earlier in this review that the content of the Army Graduate Education System is constantly undergoing revision. This is particularly true of the preventive medicine presentation which must provide both *basic* and *applicatory* education in the maintenance of health and prevention of man-power losses in groups of individuals under varying conditions. Perhaps an appropriate synonym would be "human ecology," with emphasis on the variations in environment induced by military operations. Prerequisites include a thorough grounding in either internal medicine, pathology, or microbiology. The course given annually by the Army Medical Service Graduate School requires a year in residence followed, for certain students, by one to three years in a controlled supervised duty-type assignment. Completion and defence of a satisfactory thesis are required.

Material included in this course and the allocation of hours for each component has been guided by a continuing appraisal of the causes of major man-power losses during the second world war, projecting into this appraisal, of course, variations expected for the future, including specialized forms of warfare, increased mobility, effect on civilian populations, etc. Since the research programme of the Army Medical Service is based on an almost identical philosophy, it is readily apparent that much subject material can be drawn directly from that programme and presented by investigators intimately acquainted with the various problems.

The infectious and communicable diseases are presented from the standpoint of the host-parasite relationship, including the basic mechanisms of defence and adaptation, survival, portals of entry, asymptomatic carrier state, subclinical and atypical infections, clinical signs and symptoms of disease, methods of transmission, plus the numerous endogenous and exogenous factors which result in disease or health. Drawing directly from the basic data, present and potential methods of control, therapy, and prophylaxis are derived.

A second main subhead includes alterations in the physical environment, particularly extremes of heat and cold. A third main heading deals with psychosomatic medicine, emphasizing particularly the physiology and pathology of stress and fatigue, including a special subsection on accidents and accident prevention. This section treats the important area of personal interrelationships, group structure, human communication, motivation, morale, and leadership.

A fourth major section deals with man-power classification and assignment from the health point of view. This includes physical profiling, job analysis, and personnel assignment procedures, and treats of evaluation from the physical, psychological, and psychiatric points of view. This, of necessity, deals with human engineering, or the interrelationship of man and equipment.

Utilization of such material requires a thorough working knowledge of biometrics, and much time is devoted to the derivation of concepts as well as the methods of application. Similarly, an extensive analysis of the administrative and operative functions of the preventive medicine service is included. Methods of mobilization of the scientific resources of the nation are reviewed. Student problems deal with the subjects of military import in the preventive medicine fields, utilizing and requiring the committee approach and joint study.

Career Pattern

Considerable space has been devoted to a review of these formal courses, primarily because they concern groups of officers. A consideration of the possible educational programme of each officer is impracticable, since many additions and variations exist. Certain officers may pursue courses of study in civilian educational institutions either in America or abroad. There may also be assignments of varying types, such as service in the Tropics or with special troops, or in staff and command positions. Finally, it should be emphasized that formal school courses are not necessarily prerequisites for admission to, or progress in, any given field of endeavour, and that at some time during this period of his development each officer will have one or more duty assignments.

Usually by the tenth to the twelfth years the inclinations and the career pattern of an officer are apparent; and it is at this period that officers are selected for a formal advanced course at the Medical Field Service School dealing

with overall Army operation, administration, and methods; thereby providing the framework and pattern within which the physician will operate for the remainder of his Army life. Emphasis is placed on the techniques and procedures involved in the mutual support and assistance of all military branches, recognizing the fundamental necessity for training officers of the Medical Service for duty in the field, with field armies and combat troops. Stated in another fashion, this programme provides an understanding of command, tactical and administrative problems in large-scale military operations, and considers in some detail, augmented by participation in field exercises, the methods whereby sound medical principles are put into practice within the military organization.

Conclusion

Although in this discussion the medical officer has been considered primarily as a student, it should be remembered that the Medical Service has a significant peacetime responsibility, and that during this first 12 years the medical officer has carried his share of these duties. He has had opportunity to demonstrate his ability as a clinician, as a research worker, as a member of the military team, and as a teacher. Conversely, although his days of formal medical education are essentially completed, save for brief periods of intensive instruction on a particular subject, he must remain a student for the remainder of his career, capable of providing medical service under adverse and unfamiliar conditions, often utilizing inexperienced junior personnel; capable of appraising constantly changing situations as a member of a team composed of representatives from all the arms and services; capable of meeting civilian scientists of all disciplines on essentially equal terms; and at the same time continuously accept his responsibility as an educator. His knowledge must extend into multiple fields, and he must always seek an answer in terms of "why" as well as "how." In short, the aim of the entire graduate educational programme of the Army Medical Service is to foster development of physicians capable of approaching Milton's citizen, able "to perform justly, skilfully, and magnanimously all the offices, both private and public, of peace and war."

IMPRESSIONS OF GRADUATE MEDICAL EDUCATION IN THE U.S.A.

BY

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It has become rather the fashion for British medical men to make whirlwind tours of the U.S.A. and then set themselves up as authorities on American medicine and, indeed, on every aspect of life in the New World, ranging from shirts to the economics of the hospital bed, from whether coffee should be drunk before, with, or after the meal to how a president is elected. It is therefore with grave misgivings that I join this impressionist school.

My visit lasted three months and was made possible by the generosity of the World Health Organization and greatly facilitated by the kindly help and supervision of that organization's Pan-American Sanitary Bureau in Washington. The purpose of the tour was to study medical education and to visit laboratories of cardio-respiratory research, in particular those concerned with methods of the clinical assessment of cardio-respiratory function. Conclusions were therefore, of necessity, subject to all the errors of the biased sample. I visited schools and laboratories of which I already had some knowledge from previous visits, personal contacts, or through the medium of published work. The warm hospitality with which the visitor is everywhere received has to be experienced to be believed. Research records are made freely available. In one laboratory I was given each evening a manuscript of a paper awaiting publication, and the following day one or other of the authors discussed and amplified the results.

Any catalogue of general impressions would be too diffuse and too disjointed to be of value; I will therefore confine myself to discussing what seem to me to be some of the reasons why the Harvard Medical School enjoys such a position of eminence and why such an impressive number of its graduates are to be found in academic posts. In brief, what are the methods of postgraduate training in Boston?

So far as I could detect there was no master plan for the production of a general practitioner, this or that type of specialist, clinical teacher, or research worker, but there was an intellectual atmosphere calculated to make the pursuit of each of the many disciplines of medical practice educative in the sense that the value of evidence is continually debated and assessed. The concept of the educated man as knowing when a proposition is proved is firmly established; so also is the ideal of university education as teaching people to think, to question, and to appreciate the relative insignificance of the known as compared with the unknown.

Undoubtedly an important factor in maintaining this intellectual atmosphere is the very free association between staff of all grades of seniority and students both graduate and postgraduate. During the weeks I spent in the Massachusetts General Hospital (M.G.H.) I was impressed with the easy terms of personal friendship which exerted a profound influence on the outlook of all. Meals were taken in a cafeteria in which chiefs-of-service, senior and junior staff, visitors, and clinical clerks sat down together in the happiest atmosphere of mutual enlightenment. In the many discussions that took place I learned much and had many misconceptions adjusted. In such an environment it is possible to mature quickly and yet to become senior in rank and old in years without becoming dogmatic, pompous, and unreceptive to new ideas. To be surrounded by "no-men" instead of "yes-men" is a fine prophylactic against intellectual senescence.

The Harvard Medical School

The Harvard School enjoys a rich and varied clinical field which includes the M.G.H., the Peter Bent Brigham Hospital, the Beth Israel Hospital, and a substantial part of the Boston City Hospital. A perusal of the staff lists of these hospitals reveals a remarkable aggregation of talent both in profound scholarship and in brilliant discovery, which, combined with an equal excellence in the non-clinical departments of the school, constitutes the biggest single reason why Boston stands high in the world of medicine.

The number of undergraduate students in each year is between 125 and 150, so that clinical instruction can be very personal and individual, in fact during my stay the chief of medical services at the M.G.H. had only three clerks, and they spent their entire working day on the wards. They did not have to rush off to theoretical lectures in the medical school, so that they regularly had their cases well prepared ready for presentation on the day following admis-

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sion. The proportion of interns and residents (registrars) to patients is higher than is usual in our teaching hospitals. The emphasis throughout in both undergraduate and postgraduate training is on a relatively small number of cases thoroughly and carefully studied and fully discussed with senior staff and laboratory colleagues. I think this feature is of importance in relation to postgraduate educational trends in our country.

The teaching hospital with its background of scientific departments and planned research, and its close association with other university faculties, must remain the principal training ground for consultants as well as academic men. It is the only way whereby medicine can retain its right to inclusion within universities and can avoid being solely a technology. It is a right which can never be adequately based merely on tradition but must show continued devotion to the concept of a *studium generale magistrorum et discipulorum*, a society of teachers and scholars devoted to the twin ideals of patient and unremitting research and of systematic and methodical teaching, a society in which the character traits of selflessness, humility, sincerity, and balanced judgment are fostered as well as the valuable but more meretricious qualities of technique, memory, and debating skill. These essential attributes are attainable in the large teaching hospital, but they develop less readily or not at all in the busy routine of the non-teaching hospital, where the consultant-in-training has less opportunity to discuss, to criticize, and to be criticized.

Limited Number of Students

My colleagues at Harvard emphasized that this was a very expensive method of medical education and that the maintenance of such a large staff and extensive laboratories for such a relatively small number of students was a constant source of anxiety to the university and sometimes led to carping comparisons with costs in other faculties. However, there can be no shadow of doubt but that the policy is sound; there can in no country, however wealthy—and the U.S.A. is the wealthiest the world has seen—ever be more than a comparatively small number of schools which can provide an environment so favourable to scholarship and discovery. Furthermore, such schools cannot easily be created; they grow and mature over many generations, and the essential material is human—a succession of men of character, intellect, and originality. Financial and material support is a secondary acquisition which follows naturally. So often one hears the plaintive moan of what a wonderful place so and so would be if it only had the money, just as good or better than somewhere else where they have such generous grants and munificent benefactors. Such an apologia rarely convinces; support tends to go to the school which knows how to make use of it. The attempt has sometimes been made to foster learning and discovery merely by lavish grants; this often fails because of lack of men capable of using these resources. One cannot grow rich crops by manuring alone, there must be good seed.

Limitation of numbers both of undergraduate and of postgraduate students has advantages far beyond giving opportunity to participate actively in patient care. The free interchange of ideas, the exhaustive debate, and the intimate contact is impossible with large classes. Instead there tends to develop undue emphasis on the theoretical lecture and skilful pedagogy tends to replace the Socratic method. There are schools in this country—and no doubt in America too, although I did not visit any—where the bulk of the instruction is by systematic lectures reinforced often by typescript "handouts," and where the spectacle of 30 people or more milling round a bed is commonplace. The effect of this is even worse on the teachers than the taught, as it often breeds complacency and sterile dogma. Strangely enough one has even suspected that such a state of affairs is regarded as a peculiar virtue rather than an adaptation to the instruction of too many by too few.

Environment

Certain features of Harvard staff organization contribute substantially to providing this favourable educational environment, features some of which are not applicable to this country. The senior whole-time staff is rather more numerous than in British teaching hospitals, and includes most of the professors and associate professors. Each large division of practice has a chief, such as the professor of medicine who is physician-in-chief or the professor of surgery who is surgeon-in-chief. Such chiefs are responsible not only for the organization and direction of teaching and research but for the proper conduct of clinical work throughout their whole divisions. This tradition is well established and does not seem to interfere with the inalienable right of each consultant to have unfettered charge of his patients. In some hospitals I visited it was the practice of the chief-of-service to take a routine teaching round in each ward in rotation, usually attended by his consultant colleagues whose beds were concerned. The chief-of-service exercises substantial supervision of the work of the residents and interns throughout his division.

It is the practice in the M.G.H., and I believe in most American teaching hospitals, for the consultants to have direct charge of beds for only a proportion of the year—for example, nine months on and three months off; this applies both to whole-time and part-time consultants, including the chiefs-of-service. This has many advantages, the main one being that it gives an opportunity for research work unfettered by routine responsibility. The arrangement also permits of a large consultant staff. It should be emphasized that during the time a consultant is "off the wards" he still retains a close connexion with the hospital patients in the private block, seeing cases in consultation with his colleagues, attending "grand rounds" and clinico-pathological conferences, working in his laboratory, teaching in his special subject, such as cardiology, and eating in the hospital cafeteria. There is nothing rigid about the system; the proportion of time spent "on and off" the wards seems to be a matter for mutual arrangement with the chief-of-service, dictated largely by the relative claims of research, private practice, and the adequate discharge of the corporate duty of the staff to the hospital and medical school. I suspect that this system goes a long way to explaining how it is that American physicians are able to complete such substantial research while satisfying the demands of a large consulting practice and a senior hospital appointment. Arrangements are completed for a year or two ahead so that clinicians can plan their work well in advance.

One crowning advantage of the system is that it precludes the development of the isolated unit or firm; there cannot occur the state of affairs which I heard described some years ago in reference to a teaching hospital as "a collection of cottage hospitals sharing a common kitchen." I firmly believe that there is nobody so wise or accomplished that he needs no supervision. I do not mean the authoritarian control of the bureaucrat but the friendly supervision of professional colleagues, senior and junior, an environment in which one feels free to ask and to be asked such questions as, "What are your reasons for that statement?" "Have you considered this alternative explanation?" or to say, "I don't know, can you tell me?"—an environment in which the only unforgivable sin is to bluff or bluster. Such a relationship is implied in the concept of a university and not only has the effect of developing a high level of knowledge and understanding but has a powerful influence on the development and maintenance of qualities of leadership and loyal service. I felt that such an atmosphere was well developed at Harvard and in other centres in America; indeed, it prevails in most of our teaching hospitals and wherever intelligent, enthusiastic, and warm-hearted men band together to serve to the utmost and thereby get the best out of life.

The Clinico-pathological Conference

I now turn to more specific details of teaching organization. The M.G.H. is known the world over as the birthplace of the clinico-pathological conference, or C.P.C. as it is known. Begun in a small way by Richard Cabot around 1910, it gained stature in the 'twenties and has developed into a powerful educational influence which is emulated throughout the New World.

Thursday at noon is the high-spot of the week at the M.G.H. The pathology lecture theatre is crowded, everybody is there, distinguished emeritus professors, clinical staff, research staff, students, visitors, nurses, and scientists from the near-by M.I.T. (Massachusetts Institute of Technology) specially invited to shed light on the problem under discussion. Two cases are shown, and the technique of presentation has the invariable precision of an ancient ritual. The principal performer (P.P.)—as often as not a visitor—has been provided two days beforehand with a cunningly composed summary of the clinical record of a patient who has either come to post-mortem examination or who has yielded at operation a trophy of surgical pathology. Every member of the audience finds a copy of this record on his seat. An essential qualification for the principal part is ignorance of the case apart from the summary provided. For the first 15 to 20 minutes the P.P. discusses this summary, culminating in a succinct diagnosis with a prediction of the anticipated pathological changes. Colours must be nailed to the mast, evasion or equivocation is as heinous as cowardice in the gladiator. The P.P. then stands down. After a few minutes' discussion the pathologist demonstrates the specimens by means of epidiascope and micro-projector. The P.P., and in lesser measure everybody there, is then wiser and usually humbler. Dictaphones have recorded every word, and in a few days the performers receive typescripts of their discussion; these are edited and in due course are published in the *New England Journal of Medicine*. Often the proceedings have a high dramatic quality.

The first C.P.C. I attended on this visit was remarkable for the fact that the P.P. built up a convincing case that the patient who had survived the removal of a large tumour of the ileum was suffering from hydatid disease of bone, despite the fact that a hydatid had not previously been recognized in a native of Massachusetts who had never left the State. This diagnosis was right, and it was no lucky guess but a masterpiece of deductive reasoning. The *American Journal of Medicine* carries reports of precisely similar C.P.C.s held at the Barnes Hospital at St. Louis. It is not without reason that the American Specialty Boards (which on the basis of postgraduate training, experience, and examination grant recognition) in assessing hospitals as suitable for postgraduate training attach great importance to the regular and efficient conduct of C.P.C.s. There cannot be much wrong with the place which has a well-attended weekly C.P.C.

The only criticism I heard of this exercise was that it might have an inflationary effect on the pathologist, with whom always rests the last word. I am quite prepared to hear of the introduction of the reverse exercise in which the pathologist becomes the P.P. and builds up a clinical picture on the basis of morbid anatomical findings, the clinician then revealing the truth.

The "Grand Round"

Another function of great educational value is the "grand round," which in each department is held each week. At these, two or three cases are presented, usually by the intern or resident, but sometimes by a student. Often the cases illustrate some current problem, and after the presentation a staff member discusses them for 20 to 30 minutes. These presentations are carefully prepared and great pains are taken to ensure that the persons best qualified contribute. For instance, I heard the surgical therapy of mitral stenosis discussed by a famous cardiac surgeon. On another occasion Professor Howard Means, although retired from the active staff, returned to discuss myxoedema, while in a problem case in which beryllium poisoning was suspected a representative of the biological division of M.I.T. contributed. Apart from *ad hoc* guest lectures by visitors these "grand round" discourses were the nearest approach to the theoretical lecture I found in the Harvard Clinical School. I am sure they are wise in avoiding set courses of theoretical lectures. These are so apt to degenerate into an uninspired reiteration of information which can be more easily obtained from a textbook. The systematic lecture owes its origin to an age in which books were rare and costly, and its perpetuation is an adaptation to large classes. I confess to being somewhat addicted to theoretical lecture courses, but I hope to rid myself of the habit, substituting for them more clinical lectures and discussion groups.

Ward Rounds

The value of any particular educational technique is in direct proportion to the extent of the student's active participation. This principle was particularly well illustrated in the professor's ward rounds at the M.G.H. Each new patient was visited, and the clerk presented the history, which was then discussed with particular reference to possible diagnosis; the clerk then detailed the physical examination, which was checked by the professor, and again the diagnosis was discussed. The clerk added the laboratory tests such as urinalysis, E.S.R., blood counts, etc., which he had performed himself in the side-room. Finally, and only after the fullest possible picture had been built up from the clinical data alone, were the specialist examinations such as *x*-ray films and blood chemistry admitted. I was greatly impressed by the emphasis placed on the simple clinical methods of history-taking and physical examination. I saw no tendency whatsoever to rely unduly on the esoteric laboratory tests. I have no doubt that fault exists in the U.S.A. as it does in this country; all I can say is that I did not see it either at Harvard or in any other school I visited.

The standard of presentation at ward rounds, conferences, etc., was extremely high. Whether it be a student, intern, resident, or senior staff member it seemed a point of honour to make the least possible use of notes and to present data in a succinct vivid style.

The amount of really excellent research in progress was very impressive, and I detected absolutely no trace of any antagonistic separation into "good practical doctors" and research-minded physicians.

Enthusiasm

Perhaps the most impressive feature was the intense enthusiasm. Everybody seemed determined to pack as much as possible into each day. Work often began at 8 a.m., and the whole organization was in top gear well before 9 a.m. and continued to far into the evening. All residents—that is, registrars—lived in, not so much because it was strictly necessary for the care of patients but because of the obviously valuable clinical experience and its mutually educational effect. While I was in Boston Professor Barry Wood, of St. Louis, spent a week at the Peter Bent Brigham Hospital as guest physician-in-chief, living in the hospital with the resident staff. These are practices we would do well to emulate.

In conclusion I must emphasize that, although I have confined myself largely to experiences in Boston, I found in my briefer visits to many other clinical centres, such as Rochester, N.Y., the Trudeau Foundation, the Mayo Clinic, Minneapolis, New Orleans, Birmingham, Ala., Duke University at Durham, N.C., Johns Hopkins Hospital, University of Pennsylvania Hospital, and the Presbyterian and the Bellevue Hospitals in New York, the same invigorating intellectual climate and excellence of clinical practice.

IMPRESSIONS OF POSTGRADUATE EDUCATION IN AMERICA*

BY

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One of the joys of a travelling physician is the great number of rounds, grand rounds, meetings, seminars, forums, and clinico-pathological and departmental conferences that go on in every medical centre. These are full of the enthusiasm of the New World, and may begin at 8 a.m., an hour when many doctors start their work. The discussions are generally excellent and the uninhibited exchange of knowledge stimulating and instructive, particularly if guided by a good chairman. Perhaps the Americans are more extraverted than we are, or their exhibitionism more developed, but they do not hesitate to talk. This conference habit, apart from the value of the hospital staff meeting at frequent intervals, seemed a sure way of keeping up to date on medical progress, and, perhaps, a pleasant substitute for much reading on one's own.

The Graduate Hospital of the University of Pennsylvania

The six months spent at the Graduate Hospital, a centre for postgraduate studies, was an interesting experience of teaching methods in the States. The building itself was a small one, being only 13 floors high with 350 beds. The atmosphere was not unlike that in hospitals in this country, but the pace was faster and the pressure under which the consultant staff worked seemed greater. The junior staff, both interns (house-officers) and residents (registrars), often started their rounds at 7.30 a.m., and the work would proceed without a morning-coffee interval. Nor would there be a pause in the afternoon for tea, but fortunately an addiction to this was soon induced among the staff of the laboratory in which I was working. The number of routine conferences—at least six, if the special ones such as the cardiological, neurological, radiological, etc., are included—that took place each week and to which some outside family doctors would come amazed me.

The general medical and surgical meetings, which nearly all of the staff would attend, were run on the lines of the clinico-pathological conference. The technique of the C.P.C. has been highly developed in the States, and perhaps is at its best in Boston,† where it originated under Richard Cabot. The case is presented by the physician, and as the story is told the radiologist is asked to talk about and interpret the films, the surgeon to discuss the operation he has done, and the pathologist to show any material removed or microscopical sections, and so on. This sequence exploits the interest of the problem to the full. The discussions afterwards are sometimes spontaneous and, if a number of renowned authorities are present, a delight to listen to. Otherwise they are scheduled; the speakers are previously given the details of the patient to be shown, so that their contribution is premeditated and replete with the exact and latest details of the problem.

These C.P.C.s were sometimes replaced by a case protocol, either for variation or when the clinical material became short. Then the residents would select a case from the records in which the diagnosis had proved exceptionally difficult and interesting. This would be written up in detail and copied on the mimeograph (gestetner) and all the audience given a copy, either at or before the meeting. Certain details, such as the necropsy report—often the only conclusive feature—would be omitted. Someone, perhaps of professorial status, or a distinguished visitor, would be invited to read through the case protocol at the conference and, as he did this, to give his comments on the meaning of the symptoms, the interpretation and completeness of the investigations, and the differential diagnosis. At the end of this he would be told the correct answer, to his mortification or relief. Such problems studied in retrospect were very instructive, and a lively competitive spirit was given to the meeting.

Postgraduate Courses

There are more than 800 courses each year in the States, either to refresh the general practitioner or for the trainee specialist. The Graduate School of the University of Pennsylvania, the first university postgraduate school, ran a full-time course lasting eight months, as part of the preparations for the board certifications, which are the equivalent of our higher examinations in medicine, surgery, and the specialties. The course was, in some ways, unique, and one unusual feature was the method of presenting the basic sciences. These, instead of being treated separately and independently, were carefully integrated, so that physiology, anatomy, biochemistry, pathology, and bacteriology were presented together, as they related to the various organs and systems, such as the kidney, circulation, lungs, alimentary tract, and so on. Sometimes several lecturers shared an hour, so that the physiology, pathology, and chemistry, for example, could be presented in logical sequence. This co-ordinated programme of lectures and seminars required more laborious planning than the usual block system. Yet, apart from its popularity with the postgraduate students, it was highly stimulating and rewarding to the basic science faculty members themselves, giving a broader outlook, not only in teaching but also in research (Comroe *et al.*, 1951). The students separated for the clinical part, according to their interest in internal medicine, surgery, or gastro-enterology. This schedule certainly left little time to relax, as the numerous conferences and rounds were intermingled with some practical instruction in endoscopy, radiological techniques, and laboratory procedures.

A criticism of the course, as of nearly all courses, was that there was too little contact with patients, partly because of the number of students (about 300) and also because of the high incidence of private patients. However, it was otherwise comprehensive and provided a fine scientific background, perhaps reflecting the difference of emphasis in the two countries. In Britain the clinical approach and good bedside teaching are characteristic, whereas in America the laboratory aspect is highly developed. Immediately such an easy generalization is made one realizes that this does an injustice to the many outstanding medical men of the U.S.A. whose clinical acumen is beyond reproach, and to the numerous centres in this country where there is a perfect blend of the clinical and scientific approach.

The Multiple-choice Examination

The courses in internal medicine and surgery finished with an examination. The invitation to me to sit for this, as a control subject, was welcome, particularly as it was of the multiple-choice type. This method of examination, already very widely used in many branches of learning in the U.S.A., is being applied more frequently in medicine. The candidate is only required to put a mark against the correct answer to a question. As an example, a case history is given, with abnormal physical signs, investigations, electrocardiograms, etc., and the following possibilities are suggested: (1) coronary occlusion, (2) dissecting aneurysm, (3) pulmonary embolism, (4) pericarditis, (5) left heart failure, only one of which is the right diagnosis. For the examiners the whole

*A visit to the U.S.A. was made possible by the award of a Travelling Fellowship for one year from the Endowment Fund of the United Birmingham Hospitals.

†See the *New England Medical Journal* for accounts of these, or the *Postgraduate Medical Journal* for similar conferences in Britain.

problem—and it is a very difficult problem—is in setting the questions; ambiguity, in particular, has to be avoided. Correcting the answers is the examiner's dream, as the papers can be put into a business machine and, by pressing a button, returned completely marked.

I approached the examination with confidence, as the memories of our M.R.C.P. were fresh in the mind. However, before a document of 27 pages, containing 75 questions to be answered in three hours, my self-assurance rather disappeared. The paper covered cardiology, neurology, gastro-enterology, haematology, endocrinology, and, indeed, the whole field of medicine, and took some time to read. This method of testing the candidate's knowledge has several features that are often lacking in examinations. A remarkably broad field is covered, in contrast to the usual six questions. It is fairer to the candidates, and the element of individual luck in getting the right question is lessened. The marking is objective. The examination tests the candidate's ability to think clearly and lucidly, but not his powers of synthesis of thought as is seen in the essay question. Perhaps it also enables the student to pass without being able to write—if a thumb-mark would be accepted! There might be an advantage in combining the two methods in one examination, by having the traditional paper in the morning and the multiple-choice type in the afternoon.

Some Points of Teaching

The widespread use of mechanical aids to teaching is not surprising among a race of such superb technicians as the Americans. It was never necessary to strain to hear a lecturer, as amplifying systems were universally available; there was no lack of good projectors or epidiascopes; fresh pathological specimens were recorded, as "kotochrome" slides and multiocular microscopes were used to teach histology. Coloured television, just being tried, was a striking improvement on television in monochrome for demonstrating operations. The perspective was so much better, and the tissues were more clearly defined. The accuracy of the colour was good. Another outstanding development was the use of televised microscopy in biological teaching and research, where the image of the "vidicon" camera of the microscope was increased in size 20 times or more by electronic magnification. It was fascinating to watch the movements of gigantic bacteria on the television screen. And as a wide range of wavelengths of light could be used it was a useful research tool in studying cell structure, either of organisms or of living tissues.

Professor Boyd's pathology museum must be a delight to every student in Toronto. It is not just the usual collection of dull bottled specimens, but the study of pathology is made stimulating and easier by the use of visual aids such as paintings, diagrams, and models. The material is attractively arranged with case histories, in transparent plastic envelopes, for studying the clinical aspects. To complete the picture there are libraries of coloured photographs of the microscopic details, and miniature radiographs, arranged in vertical drawers and automatically illuminated when pulled out. Professor Boyd introduced me to the paintings of the best-known medical artist in America, Professor Tom Jones, whose art department at the University of Illinois is a fine example of the importance that is being attached to this subject in the States. Large and well-staffed, it was one of several centres of training medical artists. The aim was to produce work of high artistic standard as well as useful for illustration.

New methods of giving postgraduate lectures were being tried, and in several States a telephonic postgraduate course could be taken. The county medical society arranged for a private line to be connected to a microphone at its meeting-place, and any doctor who wished could listen on his own telephone. "Listeners," one was told, "are furnished with brochures containing short biographies of the speakers, an outline of each address, reproductions of suitable visual aids, and space for notes." Even better was the radio programme arranged by the Academy of Medicine in New York. The speakers were well known and the subjects topical. This is an attractive idea for keeping up with recent advances in the comfort of an arm-chair in the evening, but only possible with the numerous radio stations in America—one of the few advantages of a commercial broadcasting system.

Keeping Up to Date

The need to keep up with recent advances seems a feature of the American doctor, perhaps not surprising in a young and progressive country where emphasis is on new and better things. Also the public, more informed on medical matters, and briefed with the latest edition of the *Reader's Digest*, are a source of pressure upon the doctor to read the latest journals, even if only to answer their questions and demands. There are also other reasons for this progressive outlook, such as income-tax deductions when the general practitioner leaves his practice to attend conferences, apart from the prestige gained amongst his patients for doing so. Perhaps the tendency goes back further and comes from habits developed during his training, for the student is encouraged to read the journals. Tuition in the critical study of good medical literature and the technique of keeping up to date may be of more value to the future doctor than many of the memory feats required in the curriculum. The provision of a reading-room in the residents' mess, with shelves containing a selection of the latest journals, is one way of encouraging him at the beginning of his career.

Atlantic City, N.J.

Every American doctor knows Atlantic City, and this article would be incomplete without a mention of my experience of it. It is a seaside resort, within easy reach of New York and other towns on the eastern coast—the counterpart of our Brighton. A city of hotels by the sea, it is an ugly place and vulgar in taste, but superbly fulfils the object of providing every conceivable facility for entertainment. Along the famous Board-walk, a wooden promenade 60 ft. wide and 8 miles long, one can sample sea food or drink at the numerous cafés, buy from the fine shops between them, see a film, have one's blood pressure taken at a stall equipped with a sphygmomanometer, visit amusement arcades, and so on *ad nauseam*.

From the medical aspect Atlantic City is one of the great convention cities, with halls designed and equipped for large audiences and vast hotel accommodation. Meetings of certain national medical societies are held there concurrently, and these medical invasions bring doctors from all parts, flying from Washington on the Pacific coast or motoring on a 24-hour trip from St. Louis. Attending the conferences was a great experience; access to them was made easy, and the well-documented programmes enabled one to select beforehand the communications one wished to hear. It was a priceless opportunity for learning the latest work and for seeing and often meeting the eminent medical personalities of the U.S.A. The technical arrangements, as usual, were perfect, and it was interesting that the Society for Clinical Investigation—the "Young Turks," as they had originally split from a more senior group—had started a campaign to make their slides as simple, clear, and lucid as possible, so that one could see at a glance the purpose for which the slide was intended, instead of trying to decipher in a few moments a mass of detail that the worker himself had spent a year in concocting.

The American Medical Association, holding its meetings there, also ran a magnificent scientific exhibition which is well worth attending. Stalls are arranged by various medical and surgical workers, displaying visually the results of their original work rather on the lines of the Wellcome Museum, London, with reprints freely available and a touch of salesmanship that seems foreign to our British reserve. However, it was a magnificent way of acquiring knowledge

and of great value to the many family doctors who flocked to Atlantic City, partly for a yearly "brush-up" of their medicine and partly as a social occasion.

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MEDICAL PROGRESS AND MEDICAL EDUCATION*

BY

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If we go back to 1900, a date which Singer believes marks as definite a period as any in the annals of medical history, we find medicine still a body of empirical knowledge, based on and developing mainly from the accumulation of bedside observations during life and anatomical studies after death. The laboratory had, it is true, begun its meteoric career in medicine, but we have it upon the authority of Sir Henry Dale that in 1900, when he began his own undergraduate clinical studies, the relation between laboratory and ward was one of "critical aloofness on both sides."

It is important to try to see the physician's aims at that time through his eyes. If he honestly pursued his calling—and most did—he regarded himself not so much as a curer of disease but more as one whose duty it was to help the patient by assuaging his symptoms and easing his mind. Nature was the Great Healer, the physician her handmaiden, ardent in his study of her ways, and skilled in anticipating her intentions; ready to perceive the first signs of recovery and to point them out with hope; quick to recognize the harbingers of evil so that he might prepare for a fatal outcome he could not avert. Perhaps he was sometimes a little pompous, but he was usually sincere, sympathetic, and genuinely interested in his patient's welfare. It is doubtful if he ever stood higher in the public esteem than at that time. His remedies were, almost without exception, empirical and based on bedside experience and tradition. Some were, by chance, effective—mercury, digitalis, and quinine are examples; some, such as salicylates and morphine, were valuable in the relief of symptoms; a few were soundly based on scientific experiment—for instance, thyroid extract, first used by Murray in 1891, and diphtheria antitoxin, discovered by von Behring in the same year.

Throughout the next 50 years the gap between laboratory and ward has grown less and less, and the methods of experimental science have, as Sir Henry Dale has said, "so permeated medicine that it has itself become almost an experimental science."

[The lecturer then surveyed briefly the advances of chemotherapy and immunology, and the new knowledge of vitamins and hormones.]

*An abridged version of a lecture to the Section of Odontology, Manchester Medical Society, given on February 25, 1952.

Perhaps more important, on account of its scientific implications, is the tremendous change in the approach to diagnosis which has come from advances in technical and laboratory medicine. The vast contributions of radiology and of the clinical laboratory to diagnosis are only aspects of this change, which goes down to the roots of medical diagnosis. In chest diseases, bronchoscopy, bronchography, tomography, and thorascopy have greatly helped the growth of chest surgery. In heart disease, angiocardiography and cardiac catheterization have taught us much about the physiology of disease processes and have led to the more precise diagnosis of those cardiac lesions that can be attacked surgically. The introduction of electrocardiography in the earlier years of the century, and its growth towards the stature of a science in the past 10 years, have helped in the diagnosis and understanding of coronary disease in particular. In neurology, air encephalography, arteriography, and electroencephalography have given important aid to the development of neurosurgery. In gastroenterology, radiology has proved especially valuable and gastroscopy and sigmoidoscopy have helped in accurate diagnosis. Studies in electrolyte and water balance, with the extensive laboratory facilities they imply, have proved of great therapeutic importance in many medical and surgical conditions. The list of advances is endless, but all I wish to do is to give scale to the extent of the change.

The Scientific Attitude of Mind

The effect of these changes upon the attitude of mind of the doctor has been profound. In the old days a physician went round his ward and, on the basis of empirical experience, issued authoritative opinions which none could gainsay. If the chief said a patient had Fallot's tetralogy, to all intents and purposes he had, for nothing short of a post-mortem examination could alter that label. It may have meant little in practice, but it lent to medicine the atmosphere of an authoritarian art. Criticism and independent thought and judgment were stifled. To-day it does not matter very much what the chief says, the merest houseman may confound his careful clinical argument with a little sheet of paper from the laboratory or *x*-ray department. That is all to the good; the heavy cloak of authority is cast aside, and the spirit of free criticism enters and vitalizes the atmosphere. Considerable intellectual readjustment has been required of the doctor now that scientific proof of the diagnosis is expected, if at all possible, and the treatment is based, at least in part, upon scientific grounds, often, as with antibiotics and anticoagulants, requiring careful laboratory control to make it effective and safe. So great has been the change that we may well wonder whether our ways of thinking have kept pace with the growth of our technical armamentarium, and whether our use of medical science is any better than the use of the weapons of science in general in the modern world. Do we rule them, or they us?

There is something more in this change than the mere introduction of scientific remedies and diagnostic tests to assist the operation of the medical art, for art it remains, as I hope to show. There is the need, and even the necessity, for the adoption of scientific habits of mind by clinicians. It has often been held that the introduction of science into medicine has led to a loss of the old skill in diagnosis by the unaided senses. There is a much greater danger than that—the danger that the clinician will fail to appreciate just how to use the scientific aids to medicine; that he will attach more importance to them than he should, and tend to regard them as penny-in-the-slot methods of getting a quick answer. Unless he adopts scientific habits of mind he will tend to read too much into the precise scientific data presented to him. To take a simple example: we know that when certain

changes appear in the electrocardiogram, myocardial infarction has almost certainly taken place. There is not too much difficulty there. The difficulty arises if the clinician goes on to infer that if these changes are *not* present myocardial infarction has *not* occurred and lets this inference sway his clinical opinion. That this assertion would have to be proved by quite a different set of scientific data would be immediately apparent to anyone accustomed to scientific ways of thinking, even if he was unfamiliar with the technique of electrocardiographic research.

Unless the clinician is adequately trained in scientific method it may be difficult for him to recognize the limited significance of the laboratory data presented to him. It is no part of the scientific method to draw deductions outside the exact significance of the ascertained data; if the clinician deduces too much, that is not the fault of the introduction of science into medicine, but is due to the inadequate scientific education of the medical student. There are no two ways about it—if we are to use scientific methods in medicine, and we must, then we must also inculcate scientific habits of thought in the clinicians who interpret scientific data. So one consequence of medical progress is the necessity to train the medical student fairly fully in scientific habits of mind, and this has certain repercussions upon the pattern of medical education, to which I shall return.

The Dangers of Modern Therapeutics

Although our rapid therapeutic advances have conferred immeasurable benefits, they also carry with them certain risks to the patient. The present-day physician is provided with a very wide range of exceedingly potent and highly dangerous drugs. As Dunlop has recently written, "We have become Jove-like in our ability to hurl therapeutic thunderbolts." The difficulty with thunderbolts is that they are rather difficult to aim and sometimes do more damage than their author intended. So it is that when we prescribe sulphonamides, thiouracil, or gold injections, we are sometimes faced with agranulocytosis or aplastic anaemia, which may be more dangerous than the disease we set out to treat. Anticoagulants have led to fatal haemorrhages, cortisone to serious endocrine disturbances and heart failure, intravenous cardiac depressants to sudden death, hexamethonium to distressing hypotension, streptomycin to permanent deafness, mercurial diuretics to severe salt depletion—and the list might be extended indefinitely. It has been said that all effective drugs are dangerous, and that statement has at least a basis of truth.

Nor does the story stop there, for in order to use our therapeutic remedies effectively the burden of most highly technical diagnostic procedures is thrown upon both doctor and patient. Not only do these methods occupy much of the physician's time and skill but they often cause the patient additional suffering and not infrequently endanger his life. Air encephalography, cardiac catheterization, cerebral and cardiac angiography, bronchoscopy, and bronchography are examples of distressing and sometimes dangerous procedures. The doctor has the great responsibility of deciding when the information gained in these ways justifies the suffering and risk, and to do this he requires not so much knowledge as judgment and understanding.

The Growth of Specialism

The development of technological medicine has led to the inevitable, but most dangerous, growth of specialisms. Specialism has indeed great dangers, and the first of these is the tendency for the specialist to believe that he, and only he, is competent to deal with the diseases which fall within his field. The more complicated the technological problems, the more willing is he to accept this point of view. So far, the specialist physicians have not succumbed to this temptation so much as the specialist surgeons. The danger of this attitude is that, if carried far enough, it will lead to the disappearance of the general physician. At least the specialist surgeons have left the area between the xiphisternum and the pubes (in the male) to the general surgeon, though they have added the proviso that he must not interfere with the kidneys, ureters, bladder, or prostate, and he will certainly suffer for it if he touches the sympathetic nervous system or the spinal column. But if all the specialist physicians insisted upon their so-called rights there would indeed be no place for the general physician. The day may yet come when there will be no physicians to whom a patient may be safely referred in the knowledge that it will not be forgotten that heart failure may be due to severe anaemia, or that a woman's indigestion may arise from her husband's habit of spending half his wages on drink. The general physician is vital for the future welfare of medicine, for without the broad outlook for which, at his best, he stands we may lose much in gaining the advantages of medical technology. One of his most important functions lies in the training of medical students, for he, more than others, should stand for the art of medicine, an art so much in danger of being lost in the almost uncontrollable tide of medical technology.

The second danger that besets the specialist is that he may become so wrapped up in the technical methods of his specialty that he neglects the essential function of every doctor—to care for the welfare of his patient as an individual. Then he is mere technician. If he wishes he can preserve, within his own limited field, the best qualities of a doctor. The danger is that there may be attracted to the specialties those who rank medical technology above the art of doctoring. To my way of thinking, the principal justification for specialism is that it limits the scope of the technical methods with which the doctor must be thoroughly familiar, and so enables him to devote more of his energies and interests to the art of medicine. Unfortunately, it is rapidly becoming true that if we are to give adequate attention to both science and art in medicine we can do so only if our field of medical science is somewhat restricted.

The third danger of specialism lies in the ease with which the specialist gets out of touch with current thought in fields other than his own. Unless he consciously sets out to keep reasonably up to date in general medicine, he will often fail to recognize treatable disease in a patient when that disease is "not in his line." He must know when to seek help from other specialists or general physicians. He has a duty common to all practising doctors: to accept responsibility for the whole welfare, mental and physical, of patients entrusted to his care, and not only for disease of the organ with which he is primarily concerned.

Perhaps the attitude to specialism I am trying to express is best put in the words of one whom I believe posterity will rank as an outstanding physician of our time, though himself a specialist. John Parkinson wrote: "The common duty required of a physician lies in the recognition and treatment of disease. If he enlarges his study to cover life as affected by disease and masters the psychology of the individual sick in body, he will widen his usefulness and reach a fuller life for himself as a physician. He will dare to enter into the mind of the patient with imaginative sympathy, proving himself a friend in need. To professional skill he will join warmth and understanding. By doing so, and only by so doing, will he accept the whole burden and fulfil his destiny. If anyone seeks happiness, here it may prove to be. It is the second mile enjoined in the text, 'And whosoever shall compel thee to go a mile, go with him twain.' The good physician will accompany his patient to the end of the road."

Medical Education

The present state of medical knowledge seems to me to demand that the student should be adequately trained as a scientist. At the same time the present trends in medical practice seem to make it more desirable than ever before that he should truly appreciate the arts of doctoring, and in

the rush to acquire technical training the arts of medicine are apt to be overlooked unless they are consciously taught. The burden of both disciplines would be heavy enough, but there is worse to come. Medical knowledge has accumulated very rapidly in recent years, and as each major advance has come to be accepted we have included it in the medical curriculum. But I fear that we have not always discarded much, and certainly not a corresponding amount, of the old material. I think it fair to say that, in addition to what the student ought to learn, he is still assimilating some irrelevant and out-of-date knowledge. The word "irrelevant" is particularly important, because the medical course has been altered piecemeal, each department changing its teaching without much co-ordination between it and other departments. This is inevitable in any growing body of knowledge, and it may well work out in the end, if the change of subject-matter is not too rapid. But the change in medicine has been so rapid as to be almost revolutionary, and I think we have become too uncoordinated as a result.

For these reasons—some inevitable, some avoidable—the learning burden on the medical student has greatly increased in recent years. In the past British medical teaching has always been based on the system of apprenticeship, with all its impalpable influences of example and personal contact. But it is a system that demands time for learning, and time has become shorter and shorter in the medical course. The student of to-day appreciates the teacher who organizes his facts in simple order and insists on the student learning them as, in the old days, poetry was learnt—by heart. Such a teacher is the man to get him through his examinations. The student can scarcely be expected to realize what some of his teachers may forget, that when he qualifies it is not so much what he knows that matters as how well fitted he is to learn by his subsequent experience, and how well equipped he is to sift and assimilate the new diagnostic and therapeutic advances which will certainly come during his practising lifetime. It may once have been true that the practice of medicine did not greatly change between qualification and retirement, but nothing could be further from the truth now. The student who qualified 20 years ago has since had to learn a great deal to remain even tolerably efficient. Of course there are aids to this necessary postgraduate learning, but the doctor must have a fairly well developed capacity for critical thought and judgment. It is this capacity to examine critically new ideas, to select those worth while, and to incorporate them in the body of his knowledge which alone justifies the claim of the doctor to be a member of one of the learned professions.

Capacity for Critical Thought and Judgment

One of the primary objects of medical education is therefore that common to all true education—to develop the capacity for critical thought and judgment. Teaching which has this aim is Socratic at root, and the way it works was recently well expressed by the warden of an Oxford college in a letter to his successor 100 years hence. He wrote: "Take nothing for granted, but throw nothing overboard before you start. Bring out into the light all the dogmas, prejudices, and casually acquired opinions that swarm in your mind. Examine them, discuss them, criticize them. If you think hard and honestly enough, you will find that by rejecting some and modifying others you can develop a truer and more objective idea of the world." The terms in which this is phrased make it particularly applicable to the humanities, but the use of this type of technique in clinical teaching was described by Franciscus Sylvius, who introduced bedside teaching in the seventeenth century. He wrote: "I have led my pupils by the hand into medical practice, using a method unknown at Leyden, or perhaps elsewhere; that is, taking them daily to visit the sick at the public hospital. There I have put the symptoms of disease before their eyes; have let them hear the complaints of the patients and have asked them their opinions as to the causes and rational treatment of each case. Whenever differences of opinion arose among them concerning these things, I, in a quiet way, pitted against each other those holding different opinions, in order that they might mutually satisfy themselves by examining all aspects of the matter, finally giving my own judgment regarding the various views. With me they confirmed the happy results of treatment, if God rewarded our labours by the return to health of the patients, or assisted in the examination of the cadaver when the patients finally paid the inevitable tribute of death."

These two statements seem to me to hold the germ of true education—as a derivation of the word implies, the "leading out" from the student those qualities of mind and perception of which he is often himself unaware, and in so doing developing his capacity for critical thought and judgment. It is in the student's own gradual recognition that he possesses these qualities, and in his enjoyment of them that the teacher gets his reward for patience.

A Liberal Education

But, as the Oxford warden went on to say, an educational system impregnated by this outlook has certain features and consequences: "It demands leisure. Its maxim is: look after the useless and the useful will look after itself; intelligent criticism is a better preparation for life than a mere load of facts or a set of prematurely formed opinions." I feel pretty sure that it is also a better preparation for medical practice in the fullest sense. I do not for a moment suggest that a doctor is not fit to practise if he is not liberally educated, but only that he will be the better doctor if he is. I also suggest that, so far as it is possible in the medical course, the medical student should have the opportunity of a liberal education. But can the medical course provide a liberal education in addition to a technical training? Himsworth recently discussed this problem and came to the conclusion that "a unified course of study in clinical medicine and in the preclinical subjects together, constitutes the basis for a liberal education in an unusually full sense of the term."

Personally, I think he goes too far. It was, I believe, Cardinal Newman who coined the phrase "liberal education" when he propounded his well-known views on the purpose of a university. He believed that just as a comprehensive scheme of physical exercises, in themselves of no practical value, can train and develop all parts of the body so that it becomes equipped to cope with a wide variety of unforeseen physical situations, so a comprehensive scheme of intellectual training can develop the mind so that it is ready to deal intelligently with the unforeseen problems of life. The subject-matter for intellectual training is not important, except that it must cover a wide field of mental activity if it is to fit the student to cope with the very varied problems he will have to face. It is from this point of view that we must try to judge the scope of the medical course as a field for liberal education. I should like to be able to agree with Himsworth when he says that the subject-matter of the medical course is wide enough, but I doubt whether it is.

There is another equally important aspect of the educative value of the medical course: how we teach is as important as what we teach, and perhaps more important. As Himsworth pointed out, the essential difference between a technological training and education is that the aim of a technological training is to impart existing information of a particular subject, and it is concerned with the future only so far as it anticipates the application of this knowledge to known or foreseen situations. An education in that subject, however, is essentially concerned with the development of ability to form judgments in the unforeseen situations which will arise as the subject advances, and it strives to do this by training the student's capacity for critical thought. Education is the concern of the university, not technological training. So, although we may not be able, within

the medical course, to provide a *liberal* education, we can, if we teach in the Socratic tradition, at least provide a *medical* education.

If we enlarge the scope of medical training a little by including the historical development of medical thought we may get a little nearer a liberal education. With the same object, the university might demand more in the way of a general education in the schools and less training in the sciences as a preliminary to medical education. It seems very doubtful whether science as taught in the schools to-day helps much in education, liberal or scientific. The personal influence of the teacher upon the student is, of course, essential in any form of true education. A tutorial system and the extension of bedside teaching of small groups of students are the obvious ways of enhancing that. Clinical and clinico-pathological conferences will help to demonstrate to the student the merits of discussion as a learning method, especially if he is encouraged to play his part.

Need for Changes in Medical Education

I believe that the time has come when we must face the problems of medical education afresh, in the light of the great changes in medical practice. Medicine now changes so rapidly that technological training alone will not enable the student to cope with the advances in diagnosis and treatment that will occur in his practising lifetime, and he has never been more in need of scientific education. Nor do I believe that scientific education is enough, for many of the situations he will have to face in practice will arise from those human problems common to everyone, but often brought to the doctor for help. In these problems I do not regard psychiatry as an adequate substitute for education, for the way a man is educated determines what he is, whereas the study of psychiatry may only enhance what he knows.

The need for a review of the whole scheme of training of the doctor, including his school education, medical education, and postgraduate education, in an attempt to reorganize and integrate it so that it reflects the changed outlook in the practice of medicine is, I believe, now apparent. But before this can be undertaken we must formulate our ideas of the objects we want to achieve and the sort of doctor we want to produce. That is what I have been trying to do. I hope that what I have said will help to emphasize the desirability of a medical training which is an education, and the importance of laying a good deal of stress on the cultivation of the arts of medicine, as well as the science. Perhaps we may even try to make the medical course as liberal an education as its limited subject matter will allow.

But, whatever changes in medical education seem to be desirable, my main point has been that the rapidity of medical progress has not been matched by an equally rapid reorganization of the medical course, so that, by unplanned incorporation of more and more technological training, we are tending to lose the essential educative character of the medical course. The result is that, only too often, the final-year medical student reaches a state of mind which reminds us of Cardinal Newman's description, written a hundred years ago, of "those earnest but ill-used persons who are forced to load their minds with a score of subjects against an examination, who have too much on their hands to indulge themselves in thinking or investigation, who devour premise and conclusion together with indiscriminate greediness, who hold whole sciences on faith, and commit demonstrations to memory, and who too often, as might be expected, when their period of education is passed, throw up all they have learned in disgust, having gained nothing really by their anxious labours, except perhaps the habit of application."

The longer we leave the present situation, the worse it will get. Let us take warning from the words of Francis Bacon: "He that will not apply new remedies, must expect new evils; for time is the greatest innovator."

PROBLEMS AND RESPONSIBILITIES OF THE UNIVERSITY SURGICAL UNIT*

BY

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As my theme for this lecture I have chosen with some diffidence the "university surgical unit," and my purpose is to discuss its special functions and the special problems which confront it. The past 25 years have brought great changes to the structure of the hospital and specialist services, and these have brought in their train many new problems, two of which I shall discuss in some detail. But first let me outline what I take to be the principal tasks of a university surgical unit.

Care of Patients

The first and pre-eminent charge is the clinical care of the patients admitted to its wards. This means that whatever other qualities the staff possess they must, above all, have wide surgical training and experience. In addition, there must be free consultation within the unit about the management of cases, and specialist opinions must be readily available and readily sought. A weekly review of the progress of all cases in the unit is of first importance, and each quarter those cases which have ended fatally should be discussed in retrospect after a full pathological report has been obtained. Only in this way are errors of diagnosis or management kept continually in the forefront of unit affairs, and every member of the team profits by each individual's experience.

Closely bound up with the clinical care of patients is the keeping of adequate clinical records. The notes must be full enough to be of value in subsequent analysis, and must be typewritten to be legible. It is one of the great paradoxes of the hospital services that clinical records of the progress of the patients for whom the hospital was built are traditionally in longhand and usually illegible, while the records of the hospital kitchen, dispensary, and workshop are invariably typewritten. There must be a satisfactory disease index system so that analysis of cases becomes simple and convenient. For all this a unit secretary is an essential member of the clinical team. She should be in charge of all case records and be responsible for filing and indexing, for the production of records when required, and for the communication of information to the general practitioner. Casual secretarial help is of little value in this matter. It is essential to have someone who takes a personal pride in the standard of record-keeping in the unit.

Instruction of Students

The second responsibility of the university surgical unit is the instruction of students. Here it is pertinent to inquire why students should be taught surgery at all. Surgery is essentially a craft, a manual occupation, and sometimes a laborious one. I must confess to having had serious qualms about its right to be admitted as an academic discipline. It is certainly true that only a small minority of medical students are attracted to its practice and still fewer ever become surgeons. Why should instruction in surgery not be restricted to those who after qualification decide to take up surgery?

There are three principal reasons why undergraduate instruction is essential in the present state of organization.

First, the original role of surgery has changed and, instead of being content to carry out operations at the request of

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physicians, surgeons have assumed the diagnostic role of their medical colleagues. As a result there are large fields of medicine which the general physician seldom encounters. Notable among these are the extensive subjects of suppuration, new growth, and trauma, all matters of great importance to the general practitioner. It is clearly essential that the student should have experience in the diagnosis and management of these conditions. The emphasis should be on personal observation and experience rather than on professional demonstration. The student must be a member of the team rather than a spectator with aching feet. It is one thing to see the salient clinical features of tuberculous disease of the hip-joint demonstrated at a distance varying from a few feet to several yards. It is quite another to examine a patient who is complaining of a limp, to elicit the essential physical signs, and to come to the conclusion that the correct diagnosis is tuberculosis of the hip-joint. Active participation in the diagnosis is the secret of profitable clinical experience.

Secondly, the student must see for himself that surgery is capable of curing a few conditions and of favourably influencing many. Here again the significant point is the personal experience which brings conviction. Formal ward rounds and set demonstrations are so convenient for teacher and student—they are so easily organized—that they are almost always preferred by both. But the value of a clinic on the surgical management of compound fractures is not to be compared with the experience of seeing a patient exsanguinated and gravely ill from a motor-cycle accident, of watching his circulation improve during blood transfusion, of seeing the haemorrhage controlled and the fractures reduced and splinted, and of observing his post-operative recovery.

Finally, it is necessary that the student should know something of the scope and extent of the various technical procedures commonly used in surgery, so that he may be able to discuss them with his patient. The latter, reasonably enough, is dissatisfied with the brief consultation with the specialist in a consulting-room or out-patient department when the decision to operate is made. He turns to his general practitioner, whom he knows and trusts, to explain the details and implications of the operation, the effects on his everyday life, and the limitations on his activities which it may entail.

This aspect of undergraduate teaching is best achieved in a follow-up department, where all patients are seen from time to time after operation. Here the student may see for himself the late results of surgery, and hear the patient describe his post-operative course and his capacity for work and recreation. It cannot be stressed too strongly that all patients, well or ill, must attend the follow-up department. Not unnaturally, fit patients are reluctant to waste a morning in coming to hospital for a brief interview from which they gain nothing. But it is imperative that they should do so in order that the unit may keep complete records of its cases and that the student may gain a true impression of the end-results of surgery.

These are the reasons why the undergraduate should be burdened with an essentially technical subject such as surgery, and these should be our aims in surgical teaching. At present it must be admitted that they are almost impossible to achieve because of the large number of students in relation to the available beds. However, a good deal can be done by bed allocation in the senior years so that each student can have four or five patients whom he examines on admission and follows throughout treatment in the hospital. Patients regard these senior students as part of the surgical team and do not resent the repeated examination which is necessary to follow clinical progress.

Promotion of Original Work

The third task which falls to the university unit is the promotion of original work. I think it is true to say that, though the local good name of the unit rests on the clinical service which it renders to patient and practitioner, its reputation in the surgical world rests on the standard of original work which it undertakes.

The investigations may be fundamental or applied. By fundamental I mean that they are not governed by what seem to be the therapeutic demands of the moment, but by what might be called the natural evolution of the problem. This approach will often lead the investigator up blind alleys and result in a mass of data which are of no apparent worth. Medical journals are full of publications of this type, and it is tempting to point to them as exemplifying the waste of money involved in research. Do not let us be deceived. If the work has been well and truly carried out the results have an intrinsic value in themselves quite apart from any practical value they may possess at the moment. For example, I recollect that in 1937, while studying adrenalectomized animals, we used a substance called "adrenal compound E" to prevent salt depletion. The substance was discovered and prepared in Dr. Kendall's biochemistry laboratory in the Mayo Clinic and was regarded as another of the innumerable fractions of the adrenal cortex, of academic but of no practical interest. Ten years later the outlook in rheumatic disease was revolutionized when Hench injected this same material into a patient with rheumatoid arthritis. The biochemical curiosity had become a therapeutic measure of great magnitude.

But more suited to a clinical unit than fundamental research is the applied research which has a definite aim in view. Here the essential point is the construction of a concrete question which usually has some such form as this: Is the course of this disease modified by this new procedure?

The basis of the question must lie in a reasonable supposition founded either on fundamental research (as in the case of the chemotherapy of infections) or in clinical deduction (as in the case of tenotomy for intermittent claudication, which was planned on the very reasonable supposition that if the claudicating muscle is put out of action the pain will be relieved). The conclusion whether in fact the procedure is beneficial may be very difficult to draw, and as a rule the clinician would be wise to turn his back on the statisticians and their tests of significance and stick to the old rule, "If it strikes you in the eye it's significant, if it doesn't, it isn't." By this I do not mean that the statistical analysis of research data in medicine is not of great value. In the field of well-controlled experimental work the technique is essential. Unfortunately, in clinical research the variables are so immense, control so difficult, and the data so inexact that statistical analysis is not of much value. An effect that requires demonstration by statistical means is not likely to be reproducible.

In order to make original work of this type possible and practicable it is essential that the university unit should have a branch of surgery in which it has special knowledge and experience. This is particularly true of our medical school, which derives its patients largely from a population of well below half a million. To carry out therapeutic trials of a worth-while size there must exist machinery for directing special types of cases to each unit—the machinery is, of course, the good will of one's colleagues, and I should like here to thank my own colleagues for their generous co-operation during the past year, which has enabled us to lay the basis for a study of the surgical aspects of the circulation.

We should not be too sanguine about the outcome of our original work. Only once in a thousand instances does the investigation lead to a result which, judged by practical standards, is profitable. We should rather aim at a good standard of research technique, care in the presentation of results, and a conservative attitude towards conclusions. The important thing is to keep trying. We can be very sure that there lie under our very noses many answers to the problems which perplex us. The greatest danger is not to be perplexed but to clothe our meagre sum of knowledge

with an explanation which satisfies our curiosity and dulls the spirit of inquiry. The temptation to be satisfied with current theory is encouraged by the desire to give patients some sort of explanation of their symptoms and students some sort of coherent instruction. How often one finds oneself face to face with the dilemma either of giving an explanation which seems rational or of admitting ignorance. I do not doubt that the latter is the correct course in almost every case. As Russell has put it, " The principle that anything which cannot be proved untrue may be assumed to be true is a principle whose falsehood is proved by the fortunes of bookmakers." But, human nature being what it is, it is inevitable that emotion overcomes reason, and so students are instructed in dogma which often has the flimsiest basis in fact.

A final point about research is worth mentioning. Modern research is becoming so complex and the methods so specialized that very few doctors are capable either of constructing or of servicing the complicated equipment which is required. There is, therefore, the need in the research team for a pure scientist whose primary interest is in the application of physical or chemical analysis to medicine. As a rule the most suitable person is the physicist or chemist, who already teaches these subjects to medical students. I have personal experience of this arrangement and know that it is profitable not only to the surgical unit but also to the pure scientist, who thereby gains an insight into biological problems which stands him in good stead in his medical teaching.

So much for the responsibilities of the surgical unit. We turn to its problems.

Surgical Specialism and Undergraduate Teaching

The first problem is the relationship of surgical specialism to undergraduate teaching. The problem is relatively new, though surgical specialism has been a fact for many years and the trend has been increasing in momentum during the past 25 years.

In Great Britain there are now fully established specialties in neurosurgery, orthopaedics, thoracic surgery, plastic surgery, and urological surgery, each with its own specialist association and journal. It is likely that this trend will increase, and already in the United States there are discernible the specialties of gastro-intestinal and cardiovascular surgery. This trend has inevitably changed the pattern of the teaching hospitals, and in several of the London hospitals each of these specialties is represented by a separate unit. One can foresee that the surgical side of the hospital of the future will be largely composed of special units each dealing with its own problems.

On the other hand, there is the responsibility of the university surgical unit to co-ordinate the teaching of undergraduates, 80% of whom will eventually become general practitioners. In planning the medical curriculum it is essential that some note should be taken of the terrestrial destination of undergraduates, though it would be wrong to make this the chief guiding principle. No medical school can ever turn out a finished general practitioner. But it should certainly attempt to give him the basic training most likely to be of value to him.

The problem, then, is this. How is the university to reconcile the ever-increasing specialization of the surgical teachers with the needs of the undergraduate medical school ?

Origins of Specialization

It is of interest to consider the origins of specialization. There seems to have been two characteristic patterns. In the first, the basis of the specialty has been laid down by an individual who, starting as a general surgeon, has become absorbed in the problems of one field and gradually brought his whole intellectual activity to bear upon it to the exclusion of everything else.

The clearest example of this is provided by neurosurgery. Harvey Cushing was a pupil of Halsted, the first professor of surgery in Johns Hopkins. Trained and for several years practising as a general surgeon, he became intrigued with the special problems presented by intracranial surgery. When at Harvard he attacked these difficulties with all his supreme intellectual ability. Surgeons were attracted to his clinic from all over the world. Professor Norman Dott became his pupil and brought back the specialty to Scotland. It is well to note that intracranial surgery was a branch of general surgery in this country long before this. Sir William Macewen, professor of surgery in Glasgow University, was one of its pioneers. But as long as it remained a branch of general surgery progress was slow. When all the intellectual endeavour of a few outstanding men was directed upon this relatively narrow field rapid advance was seen, until the successful removal of a brain tumour, from being a thing of extreme rarity, became an everyday affair.

The second way in which a surgical specialty has developed is seen in the case of orthopaedics and of urological surgery. Each of these reached a high degree of organization and skill while still branches of general surgery, and were practised by men who were general surgeons with a special interest in one field. Such men as Lane, Kocher, and Hey Groves, whose contribution to orthopaedic surgery was immense, were primarily general surgeons. It was not until the field of orthopaedic work became too large for a general surgeon to become proficient in it that the complete specialty developed. In urological surgery a similar pattern may be discerned—the operations of prostatectomy, nephrolithotomy, and urethrotomy were all originated by general surgeons with a special leaning towards urology. The full specialty gradually emerged as the range of techniques became larger.

Advantages and Disadvantages of Specialism

That this trend towards specialism is sound from the point of view of the patient we cannot doubt. Every surgeon knows that his professional skill is chiefly governed by experience. The morbidity of his first hundred cases of any major surgical disorder is much greater than that of the next hundred. It is often difficult to lay one's finger on any one factor in this improvement, and it is probably true to say that a large number of impressions, often apparently unimportant in themselves, summate to give the indefinable quality of clinical skill. Again, knowledge of the end-results of alternative procedures becomes more secure as experience grows and ability to plan advances in technique becomes greater. Not least, judgment of when surgical intervention is likely to be disastrous becomes sounder. The matter may well be different in non-technical fields, and it is quite possible that in internal medicine, with its emphasis on diagnosis, the trend towards specialism is less desirable. Here perhaps an ability to survey the patient as a whole may be of more importance than detailed knowledge of management. Yet here, too, technique is beginning to demand specialization. Few general physicians would care to undertake the investigation necessary for the accurate diagnosis of congenital heart lesion or the metabolic studies essential in diseases of the endocrine system. Perhaps the best solution in medicine lies in the hands of the general physician with a special knowledge of one field.

From the point of view of the medical student the trend towards special surgical units has been unsatisfactory. The difficulty which specialization raises is that it is impossible for a student to spend enough time in each unit to permit him to become part of the team and to gain a profitable amount of insight into its problems. Let us suppose that in the central hospital of the future there are special units for orthopaedics, urology, thoracic surgery, plastic surgery, and neurosurgery. A student has only a limited amount of time to spend in clinical surgery, and it is patently impossible to spend a profitable period in each of these units. Yet if he sees nothing of urology or of the special problems involved in orthopaedics there will be serious gaps in his experience which will handicap him in later professional life. It becomes obvious that the best interests of the

patient are incompatible with those of the student, and that the university must seek some compromise solution for the future. Three possible solutions suggest themselves.

Composite Teaching Units

The first possible solution is that the teaching hospital of the future might be made up of a number of composite teaching units each containing a representative sample of general and special surgical cases. Since it is almost certain that in new hospitals wards will be divided off into a number of small rooms, perhaps of six beds, an arrangement like this could conveniently be made. The operating theatres are almost certain to be on the block system, so that objections on the grounds of remoteness from the theatres are likely to be invalid. This arrangement would be admirable from the point of view of teaching, as students in a three-months appointment to such a ward would have the opportunity of seeing a very representative group of cases while the patients would still have the benefit of specialist treatment.

The disadvantages, however, are very great. As many different surgeons would have beds in the unit, there could be no single chief charged with its administration. The resident and nursing staff would be responsible to all of the surgeons equally, and the difficulty of making an efficient team would be tremendous.

Separation of Diagnostic and Therapeutic Sides

The second possible solution is that the diagnostic side of surgery should be clearly divorced from the therapeutic side, as is done in many American clinics. The diagnostic side might consist of a group of out-patient clinics each responsible for the investigation of all types of surgical disorders, for calling in specialist advice when necessary, and for making up waiting-lists for the wards. Without doubt fine opportunities would be provided for undergraduate teaching by this method. The student in a three-months tour of duty would be able to see and examine a range of surgical cases such as would be difficult to obtain in any other way. He would have the great advantage of seeing the case from the beginning, of making an attempt at a diagnosis, and, finally, watching the consultant approach the same problem and decide on a course of action.

A further period of several months might then be spent passing through the various special units to which the cases had been referred. There he would see the definitive treatment and learn a little of the methods employed.

The difficulty about this arrangement, which would be admirable from the educational standpoint, is again the question of staffing. The diagnostic units would have to be staffed by men of very wide training in surgery; their task would be a very arduous one, and it would encroach severely on their other professional activities. Specialists would not like the arrangement, for a great deal of their time would be taken up with consultations, and, finally, patients might prefer to see the "specialist" at once without being examined by the general diagnostic surgeon. Nevertheless, I have seen an arrangement like this work very smoothly in the Mayo Clinic, where there is almost complete separation of diagnostic and therapeutic sides of medicine.

General Surgery Units and Smaller Special Units

The final and I think the most practical solution is that in the teaching hospital there should be the usual general surgery units dealing with straightforward cases in all fields, but in addition there should be smaller units representing the major specialties. The more difficult special problems might be dealt with in these special units—for instance, in urology total cystoprostatectomy for carcinoma and transurethral resection of the prostate. The main units of the specialists would then lie not in the undergraduate teaching hospital but in a specialist hospital more suitable for the teaching of postgraduates. This is in effect what has been done with conspicuous success in many teaching hospitals in this country and in America. The main clinical appointment of the undergraduate is to the large general units, where he receives a wide training in the diagnosis and management of the common surgical disorders. Shorter periods are spent in each of the special units, where he learns a little of the way in which the particularly difficult problems are dealt with.

This seems to be the most practical way in which to resolve the conflicting interest of patient and student. It is by no means a perfect solution. Few specialists would agree that a general surgeon should treat cases in the specialist province at all. They will say with perfect justice that it is difficult to tell at the outset of treatment whether a case is going to be straightforward or complicated, and that the best way of ensuring freedom from complication is to refer the case to the specialist from the start. The answer to this is that in this imperfect world the ideal can rarely be obtained, and in an undergraduate teaching hospital this compromise is essential in the interests of medical education.

The Surgical Unit and the Community

The second problem which confronts a university surgical unit is concerned with its relationship to the community which it serves. As a result of recommendations made by the Haldane Commission on Medical Education in 1913 and by the Goodenough Committee in 1945, the staff is debarred from consulting practice outside the hospital. This recommendation was made with the admirable aim of freeing the staff from the burden of private practice and so of allowing enough time for the planning and prosecution of research. It has had effects which were not foreseen by its originators.

First, the university staff has tended to lose touch with the general practitioners in the area and to become involuntarily divorced from the problems of general practice. There can be no doubt that the consultant–practitioner relationship is one of great importance in a first-class medical service. Each derives from the other a fresh outlook on the problems presented by illness. The practitioner's point of view is the healthy one of getting the ill person back to work, while the consultant usually looks upon disease as a problem, often fascinating, which may or may not be capable of solution. The one approach is practical, the other speculative; the one is complementary to the other and each is necessary. That the university staff is in danger of losing this relationship is something which we cannot regard without misgiving.

In the same way the university surgeon loses touch with the patient in his own home. His mental image of illness tends to become fixed in the pattern of a patient in a tidy hospital bed, with temperature charts and laboratory reports ready to hand. He tends to forget the family problems involved in illness. His task is to make the patient, if he can, a happy and useful member of society, and anything which prevents him from seeing ill patients in relation to their background must make this task more difficult. It is not easy to see the solution to this problem. It is imperative that the members of the staff of the university unit should not be so preoccupied with practice that the end of a day sees them too tired to undertake research; yet it is equally imperative that they keep in touch with the general problems of medical practice. I do not think that this is the place to elaborate this theme further, but I believe that the universities will have to face the problem in the future.

I fear that my account of the university surgical unit, its responsibilities and its problems, has been very remote from the reality. It cannot be resolved by an hour's discussion. Ultimately it is a problem of human relationships: on the one hand with the colleagues upon whose advice and help the project largely depends; on the other with patients whose courage in the face of adversity is of more importance than the skill of the surgeons.

WHITHER FORENSIC MEDICINE?*

BY

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Forensic medicine or medical jurisprudence may be defined as the science concerned with the application of medical knowledge to the purposes of the Law. Since administration of the Law is a principal function of the State, the close relationship which obtains between forensic medicine on the one hand and the State on the other becomes well established.

At an early date this subject received clear recognition as an important ancillary in relation to the functioning of our legal system, and in 1807 King George III granted the commission to create a professorship of medical jurisprudence in Edinburgh University, the first chair of forensic medicine in the British Dominions. Recognition of the importance of the subject steadily gained ground, and in 1834 Taylor was appointed Professor of Medical Jurisprudence at Guy's Hospital Medical School. Ten years later Dr. William Guy became Professor of Forensic Medicine at King's College. A regius chair was established at Glasgow University in 1839 and a chair at Aberdeen in 1857. By 1934 37 medical schools in Great Britain provided courses of instruction given by lecturers, this being due to the fact that in the previous year the subject had been made an obligatory one in the medical curriculum in all medical schools throughout the United Kingdom. Thus this state of affairs afforded medical jurisprudence academic recognition throughout the country and once and for all conferred proper status. Between then and now chairs were created at Liverpool and, most recently, at Leeds Universities.

Criminal statistics over the past years show a steady rise in the incidence of crime against the person fairly well all over Britain, and it would seem logical to expect that there should be not only a sustained but an increased interest on the part of the State towards the subject of forensic medicine and the assistance which it undoubtedly is giving to criminal investigation and thus to the welfare of the citizen. It is, therefore, well worth while to-day to consider in some detail whether or not such an interest is in fact being shown. Looking around, one wonders why the chairs at Guy's, at King's, and at Aberdeen and Liverpool Universities are no longer in existence, and why no place has been allotted to the subject of medical jurisprudence within the fabric of the National Health Service, essentially a Government enterprise.

Status of Forensic Medicine

Before attempting to outline some of the effects of the exclusion of this subject from recent medical legislation, I wish to stress the term "exclusion" because I am here not concerned with the merits or the demerits of the National Health Service. The difficulties which I propose to refer to have arisen merely from the fact that a State medical service has been brought into being with the exclusion of forensic medicine and the absence of any provisions for the specialists practising this subject. One is forced to consider the answers to a number of questions, and among these questions are: Whether the one-time interest of the State in our specialty has gradually evanesced? Whether the close relationship between specialized forensic medicine and the State has been forgotten or whether it has merely been overlooked through lack of sincere or adequate representation at the deliberations concerning the formation of the National Health Service as we now see it. Whatever the reason for the exclusion, it seems to me to have produced some very important effects, and I would like to discuss these in some detail. I would like to stress the importance of this detailed analysis, since it would be very easy to be deceived by a superficial view. For instance, I have heard it said that the practice of forensic medicine is quite suitably placed as it stands, and that the State has the services of a number of experienced medico-legists who are satisfied with their conditions of work; why, therefore, should we bother about something which is working well? I do not think, however, that this is the full answer, and I would therefore like to draw attention to some considerations which I think are important.

First of all I would suggest that the omission of forensic medicine from the State medical service has not tended to enhance or embellish the status of the subject either in the eyes of the clinicians or in the minds of some of the administrators of universities and teaching schools. This is a general matter, and I do not wish to place too much stress upon it. I am, however, certain of its reality, and have the impression that we have not yet seen its full effect.

No Inducement to Suitable Recruits

I pass from this to the very important question of the effect of the State medical service on the recruitment of suitable doctors for forensic medicine. To make the position clear I would draw attention to a section in the Spens Report dealing with the question of equality of status between different branches of specialized practice and the matter of recruitment:

> "We are certain that unless all specialists, in whatever branch of medicine they practise, have an opportunity of reaching the highest levels of remuneration, the ancillary specialties, however important, will find it difficult to attract sufficient recruits of suitable calibre. The principle on which we decided to base our recommendations was that all varieties of specialists should be remunerated within the same range of incomes, the place of an individual within this range being dependent upon his responsibilities, experience, and skill. Thus the highest remuneration would be open to specialists in all fields, although the proportion attaining that remuneration might be less in some fields than in others, and might vary with the increasing importance of this or that branch of medicine."

This, then, may be accepted as the yardstick of the remunerative potentialities of a medical specialist, but apparently the medico-legist does not fall within this category. The National Health Service makes provision for the training of specialists, with remuneration at a relatively high level during the entire period—but here again forensic medicine is excluded.

Turning next to the question of whether forensic medicine is quite suitably placed as it stands, even if it be admitted that the number of medico-legal specialists is adequate for the present-day demands of the State, further points still emerge; for example, how many medico-legal specialists, on account of the employment of their services by legal authorities and the skirmishing thus involved in the course of routine work, can claim that there is enough time for any far-reaching research work or adequate consideration for those for whom they are responsible in training as future medico-legists? Thus again, through exclusion from the Service, pressure of remunerative work assails forensic medicine. In the light of these facts is it at all surprising that there is already a dearth of recruits to the field of medico-legal practice? One wonders how much more accentuated this position may become in the immediate future. If the specialty of forensic medicine is to be perpetuated to any serious extent this dearth is almost bound to result in a deterioration in the quality of the candidates that do come forward.

*A paper read to the British Association of Forensic Pathologists in Glasgow on June 28, 1952.

The Official Attitude

From a review of the position of forensic medicine as it stands to-day, one primary question arises. Has the practice of forensic medicine been excluded from the Act deliberately or unintentionally? It is difficult to reconcile one's mind to the latter view as an adequate explanation, since detailed consideration of such a scheme must inevitably have been given by so many before legislative weight was accorded to it. Colour is lent to the former view, however, since the apparent practical outcome of the Act suggests an intention, almost a decision, to farm out medico-legal work to all and sundry, thereby freeing the State from recognition of forensic medicine as a practical and individual specialty, so far as the Act is concerned.

In this connexion it is interesting to note that by clear specification a number of medico-legal duties may be undertaken remuneratively even by those already described as full-time participants under the Act. I have been informed that in certain quarters full-time pathologists have participated in forensic pathology to the detriment of forensic medicine specialists, that there has been a tendency to farm out police surgeon's work to ordinary but willing practitioners, and that, speaking broadly, there has been a trend toward the dissemination of certain types of medico-legal work to literally all and sundry in the ranks of the medical profession who are willing to accept it. It has also been reported to me that sometimes coroners and procurators-fiscal have engaged the services of doctors who have not had adequate experience of either a medico-legal post-mortem examination or its implications. Whether or not these allegations are completely accurate, the salient fact remains that the Act encourages even whole-time participants to undertake medico-legal work on a remunerative basis.

Place of Forensic Medicine in the Curriculum

I have briefly surveyed the role of forensic medicine in the field. Perhaps it is now both desirable and opportune to consider very shortly how the subject is faring in academic quarters. Already I have suggested that the omission of forensic medicine from the Act has not improved its status in the minds of some of the administrators of universities and teaching schools. The reason for this may be that since medical jurisprudence has failed to find a place beside pathology or any other clinical subject, its importance to the medical profession must thus be of a very limited character and of no great significance, more especially having regard to the clamour of clinicians and others concerned in medical curricula for additional teaching hours.

In November, 1950, the attention of the British Association of Forensic Pathologists was drawn to the fact that London University proposed to abolish forensic medicine and hygiene as separate subjects in the London M.B. examination. Despite many overtures to rectify such an intention, it seems that the result of the most recent deliberations on the part of London University has not yet been disclosed.

Reviewing the teaching in the various universities throughout the country, one's attention is forcibly struck by the variation in the length of the courses on medical jurisprudence. This may well be the practical reflection of the particular attitude held in regard to the subject by the controlling body in question. Some colour to this interpretation is lent perhaps by the terms employed in the Report of the Inter-departmental Committee on Medical Schools. The only reference made to forensic medicine is: "In some medical schools the amount of instruction given to medical students on forensic medicine seems excessive having regard to the needs of general practice." One does not know the schools referred to, but it is both heartening and refreshing to leave this drab statement and turn to the recommendations of the General Medical Council in relation to the medical curriculum published in 1947. There it is stated: "In deciding the importance that should be attached to the various subjects and the type of instruction that should be given, the bias should be towards the needs of the future general practitioner."

It is pleasing to note the Council's remarks in connexion with the Goodenough Committee's Report—namely, "It is sufficient for the present purpose to say that the liability of every general practitioner to be called upon without notice to take decisions of grave importance on questions within the province of forensic medicine makes it imperative, in their judgment, that due weight should continue to be attached to the subject in the curriculum." I cannot overemphasize how much I agree with this recommendation, which is borne out by the remarks in a leading article in the *British Medical Journal* of March 22, 1952 (p. 641).

It seems that half a million certificates of death are issued in this country every year, but the Registrar-General apparently finds it necessary to send out some 10,000 requests to doctors for supplementary information each year in order that causes of death may be adequately classified.

To furnish careful and accurate certificates of the cause of death is an important responsibility of the medical profession. This responsibility has never been greater than at present in view of the collection of data necessary for the elucidation of medical problems.

Where is the doctor of the immediate future to make his acquaintance with the subtleties of the death certificate, the cremation certificate, the certificates of lunacy, the medical report, the problems attendant on malpraxis, the ethical aspects of the conduct of medical practice, and his rights and limitations within the procedural aspects of the law, if not in the class-room of forensic medicine? It is erroneously thought by many that this subject is one almost exclusively directed to the dramas of "blood and thunder" rather than to law as it is applied to the practice of medicine. Although there is a distinct and discernible tendency to soft-pedal "the subject" in certain academic quarters, the recommendations of the Spens Committee, to which I have already alluded in connexion with recruits to forensic medicine, states: "We have no doubt that teaching is an additional burden on the specialist and calls for special aptitude and skill. We are doubtful indeed whether it will be possible to secure the best men for teaching unless they receive higher remuneration."

In this connexion I would make reference to the procedure which obtains in certain places of creating ostensibly whole-time university or police appointments remunerated by the employing body at what they consider full-time terms but where, in fact, a large proportion of the salaries paid are reimbursed from the fees accruing from contractual obligations under these appointments and connected with medico-legal work—for example, coroners' and procurators-fiscal's fees. There seems little to commend such a practice.

Remuneration of Medico-legal Specialist

I have already touched upon the subject of remuneration under the Act and the recruit. I would now like to discuss this somewhat material matter in relation to the fully fledged medico-legal specialist. When a comparison is made between the average remuneration of the medico-legist and the specialist in the National Health Service, it may appear in many instances to be not unfavourable, but a more detailed analysis is necessary before the true picture becomes delineated, since all present rates of income are exposed to extortionate taxation. The inevitable result is that as salary ceiling is the order of the day progressive saving for the future becomes almost impossible. This, however, has apparently been recognized in the National Health Service, and thus high rates of pension, based both on salary and "merit award," have been established. It is unnecessary for me to refer to calculations in connexion with interest on capital, but I submit that savings which would yield an income comparable with the pensions granted to specialists under the Act would require an annual remuneration, under existing rates of taxation, bordering on the fantastic.

It must not be forgotten that Crown work for many flows from the hands of the coroners in England and from the procurators-fiscal in Scotland, that this work is neither pensionable nor the subject of superannuation, and, finally, that such a flow may be interrupted for many reasons. In this connexion the following passage from a recent medical journal, describing the terminal professional phase of an outstanding British medico-legist, is not irrelevant: "It is a sad commentary on the system under which he worked that when, with increasing years, he began to falter and to fumble and when his magnificent memory began to play him false, he still had to cut up bodies at two guineas a time to earn a modest living."

I believe that we must accept much of the responsibility for the present position in which forensic medicine finds itself and which is undoubtedly due to a variety of factors, lack of adequate representation being one of the most important. Even in the British Medical Association many specialized branches of medicine—for example, pathology—are well represented, and their voices can be clearly heard in matters affecting their interests. But once again we are silent, having no proper sponsor. For long enough a tendency to rivalry and competition within our ranks has exercised a rather distintegrating influence on proper co-ordination and unity, and tolerance of unsatisfactory working conditions, of inadequate remuneration, and of other factors which would not have been accepted for a moment by those practising other branches of medicine have each and all exercised a combined effect. Perhaps there is small desire to change the existing position. Some of us who have worked long under the old regime are unlikely to savour the fruits of any changes. But what of those who are to follow? Do we not owe them a duty to ameliorate things? I rather think so, if we pretend to take any interest at all in this matter.

Lines of Approach

If it is thought, as the result of this outline of a somewhat difficult and possibly controversial subject, that the present situation in forensic medicine is unsatisfactory, then obviously some alternative and better method of organizing the subject must be sought. It is not, of course, possible in the limited space at my disposal to discuss this aspect of the subject in any detail, but I would, before concluding, like to submit one or two very general considerations which are to some extent based on my previous remarks. There seems to me to be two feasible and yet very broad lines of approach. The first is to incorporate the subject of forensic medicine as a specialist branch of the National Health Service, with the various university teaching schools as regional headquarters. The second, but to my mind very much less desirable, is to base a complete medico-legal service for the country on the forensic science laboratories, but with many modifications of the existing service as we now know it.

Whichever of these methods might be adopted, and I have no doubt in my mind which is the more desirable, I am certain that it can be adequately staffed for the purposes of practice in the field, and for teaching and research, only if the terms of service are based on similar lines to those of the National Health Service.

I have submitted for consideration some factors which in my estimate suggest a pointer to how things are going in the realm of forensic medicine. For over 30 years I have observed the teaching and the practice of this subject at close range, and I can only say that prospects seem rather disquieting. This, of course, is merely a personal observation, and the answer to the question, Whither forensic medicine? is one that I must leave open to others.

Leprosy is not uncommon in the Iberian Peninsula, according to a recent W.H.O. publication. In Spain there are 1,708 registered cases, and in Portugal 1,416. Figures given for other European countries are Greece 643, France 250 to 300, United Kingdom 100, Norway 16, Sweden 6, and Federal Republic of Germany 4.

Medical Memoranda

Spontaneous Rupture of the Symphysis Pubis in Normal Labour

As spontaneous rupture of the symphysis pubis in normal delivery is an unusual occurrence, a description of the following case may be of interest.

CASE REPORT

A 2-gravida aged 23 was first seen in the antenatal clinic on July 31, 1947. Her first pregnancy, in 1945, was normal and ended with spontaneous delivery of a healthy male child. There was, however, a history of sciatic pain in her right leg, first noticed during the puerperium, which lasted for several weeks and made walking difficult. Her last menstrual period before the second pregnancy was on May 18, 1947; the estimated date of delivery was February 25, 1948. The antenatal period was normal throughout. There were no pelvic abnormalities. Labour began at 8 a.m. on February 9 and the patient was admitted to the maternity ward at 1.50 p.m.

On admission the uterine contractions were of moderate strength, the membranes were intact, the vertex was presenting in the left occipito-anterior position, and the foetal head was engaging. Labour proceeded normally, the contractions becoming fairly strong. The membranes ruptured at 4.45 p.m., by which time the os was fully dilated. The second stage lasted only 15 minutes, and at 5 p.m. a healthy male child was born, weighing 7 lb. 4 oz. (3.3 kg.). The placenta was born after a further 25 minutes. The total duration of labour was 9 hours 25 minutes: first stage, 8 hours 45 minutes; second stage, 15 minutes; third stage, 25 minutes. The patient felt well and did not complain of any pain or discomfort. Three days later, on February 11, she experienced a sudden and sharp pain in her groins after she had tried to turn in bed. From then onwards any attempt to raise either leg, actively or passively, was accompanied by sharp pains in the groins, as was, in fact, any movement of the lower limbs or pelvis; and the most comfortable attitude for her was lying on her back, with her knees slightly bent and both thighs abducted.

On examination it was found that she experienced pain when the symphysis pubis was merely touched, and a groove about as wide as a normal index-finger could be felt between the two pubic rami. No pain was felt on rotating the femur, nor were there any pains in the region of the sacro-iliac joints, though sharp pain was felt on pressure upon the trochanters. There were no signs of oedema or haematoma, but the temperature began to rise to 100° F. (37.8° C.) during the afternoon. A spontaneous separation of the symphysis pubis was suspected. An *x*-ray film of the pelvis taken on February 13 revealed a separation of the symphysis pubis, the gap measuring 15 mm. (3/5 in.). The pubic bones were slightly out of alignment. Adhesive strappings, enveloping the pelvis tightly, gave noticeable relief and enabled the patient to change her position from time to time without great pain. The temperature subsided to normal on February 14, and the rest of the puerperium was uneventful. The function of the bladder remained unimpaired.

The patient was kept in bed for a fortnight and was then permitted to get up for light exercise. Weight-bearing was still accompanied by pain, especially in the left groin, but both legs could be freely moved in the recumbent position. After another four days of further progress, she was able to walk a short distance. She had a waddling gait and a slight limp. She was discharged from hospital on February 28 wearing a tightly fitting belt round the pelvis. She was given instructions to avoid exertion.

When last seen on April 7, 1948, her condition was much improved, her gait was normal, and her only complaint was

that she became easily tired after walking. An *x*-ray film taken the same day showed the gap between the two pubic rami to be distinctly smaller—approximately half its former size. Of special interest was the evidence of an opacity at the upper part of the articular border of the right pubic ramus, which was probably caused by callus formation following an avulsion of bony structure at the time of the rupture of the symphysis or the superior pubic ligament.

Comment

The outstanding feature of this case is the sudden and unexpected onset of symptoms three days after a normal and easy delivery. No warning symptoms during or after delivery were noticed; on the contrary, the patient gave the usual assistance when being transferred by trolley from the bed in the delivery room to the bed in the ward, a feat which she would have been unable to perform three days later. The comparatively late manifestation of symptoms, though somewhat puzzling, is apparently not so unusual in cases of spontaneous rupture of the symphysis pubis, and was also found by Reis *et al.* (1932). The most plausible explanation seems to be that the physiological softening of ligaments and symphysis had been excessive during pregnancy. Some damage may have been done to the soft structures of the pelvic girdle, including the symphysis pubis, during the patient's first delivery. Finkbeiner (1948) draws attention to the presence of fissures and small cavities in the fibrocartilage of the symphysis, due to the trauma of successive pregnancies, and points out their weakening effect. The wedge effect of the foetal head, enhanced by the latter's quick descent during the short second stage (15 minutes), probably overstretched the ligaments and symphysis to a point short of rupture, the rupture finally occurring three days later, caused perhaps by a somewhat abrupt movement in bed.

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Acquired Sensitivity to Streptomycin and Sodium P.A.S.

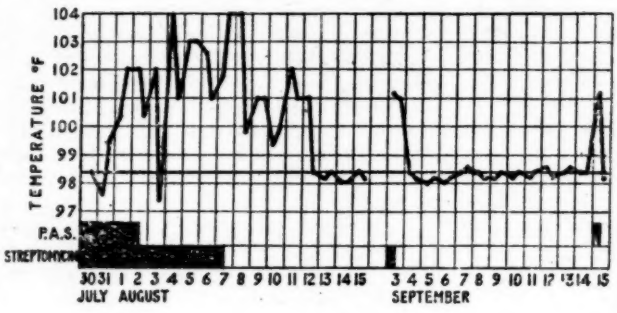
The treatment of tuberculosis with combined sodium *para*-aminosalicylate and streptomycin has been in widespread use for about three years, but I believe that the following is the first reported case in which proved simultaneous sensitization to both these drugs has developed.

Case Report

A man aged 29 was a close contact of an open case of tuberculosis in January, 1950, but his *x*-ray film at that time was normal. In June considerable infiltration of the left upper lobe was shown, and the sputum contained tubercle bacilli. He was asymptomatic, with no abnormal physical signs and an E.S.R. of 2 mm. in one hour. There was no personal or family history of allergy. On July 7 treatment with sodium P.A.S., 18 g. daily, and streptomycin, 0.5 g. twice daily, was begun. He did not complain of either nausea or vomiting during the fifteen days he was taking P.A.S.

The temperature rose on the evening of July 31 (see Chart), and the patient complained of headache, but there were no abnormal physical signs. During the following afternoon a marked erythema of the face with suffused conjunctivae developed, and the cervical glands on the right side were enlarged. "Anthisan," 0.2 g. three times a day, was started. Next day a dark-red morbilliform rash covered the neck, arms, and thorax; the administration of P.A.S. was stopped. On August 3, although his temperature was still raised, the rash had receded, only the abdomen and legs being affected. By the following day the rash had completely faded, but there were headache, some neck rigidity, and generalized limb pains.

His general condition had improved on August 6, and the temperature had fallen slightly, but it rose again on the 7th, and a generalized erythematous rash developed. His condition was very poor, and he had lost 14 lb. (6.4 kg.) in a week. During the evening he had severe vomiting. Streptomycin was withheld. P.A.S. was not found in the blood. He felt much better on the 8th, but the rash remained and was very irritating. Early desquamation was noticed over the back. The pyrexia continued. The



temperature finally fell to normal on the 12th, and his condition was much improved. The rash had faded, but there were scattered areas of desquamation. On August 15 the serum bilirubin was 0.6 mg. per 100 ml., the cadmium sulphate reaction was 16 units (normal 2–6), and there was slight improvement in the *x*-ray film compared with one taken on July 13.

On September 1 skin-testing to 20% sodium P.A.S. was positive after 12 hours. Next day, in view of the evident P.A.S. sensitivity, streptomycin was recommenced. On the 3rd the patient developed pyrexia and a generalized erythematous rash, and the streptomycin was stopped. On September 14, because he was clearly sensitized to streptomycin and because no controls had been used in the P.A.S. patch test, it was thought worth while to give a further dose of P.A.S. This resulted in pyrexia and a morbilliform rash within a few hours. On the 16th the serum bilirubin was 1 mg. per 100 ml. and the cadmium sulphate reaction was 8 units. He had regained all the lost weight by September 18, and was generally in good condition.

Several blood counts were done during the course of the illness. No eosinophilia was found, but there was a very high proportion of degenerate neutrophils.

Comment

Drug rashes are quite common in cases treated with streptomycin. Pulaski and De Bakey (1946) found them in 5% of their cases. Febrile reactions occur much less often, particularly when the dosage is 1 g. daily or less.

For some time sodium P.A.S. was thought to be relatively free from side-effects, apart from nausea, vomiting, and diarrhoea. However, Hemming and Stewart (1949) reported drug fever, and shortly afterwards Kierland and Carr (1949), in America, described two cases with fever and rashes. The latter found sensitivity occurring in 2–4% of their cases. Other toxic effects include albuminuria, crystalluria, jaundice, enlarged lymph nodes, and anuria. Cayley (1950) has reported cardiac irregularities and paralysis due to potassium deficiency.

The cause of these manifestations is not entirely clear. The drug fever and rash appear to be allergic. This is shown by eosinophilia, positive patch testing, and the effectiveness of desensitization. Climie (1950) has suggested that the sensitizing agent is probably a derivative of meta-aminophenol. Cuthbert (1950) states that it is still impossible to prove whether the liver dysfunction is secondary to allergic thickening of tissues or is due to a toxic side-effect. Madigan

et al. (1950) found significant but subclinical prolongation of the prothrombin time in cases without toxic symptoms. The present case showed abnormal liver-function tests but no jaundice or bile in the urine. All five cases in which hepatic disorders have been recorded (Cuthbert, 1950; Livingstone and Street, 1950; Scott and McCann, 1950; Hurrell, 1950) have also had evidence of allergy—eosinophilia, urticaria, or positive skin reaction. No jaundice is reported when normal doses are given following desensitization. It would appear that the jaundice is probably due to a toxic hepatitis of allergic origin.

The occurrence of simultaneous sensitization to streptomycin and P.A.S. may be purely coincidental. In view of the fact that many workers have successfully continued streptomycin therapy in spite of P.A.S. reactions, this would appear to be so. The present case illustrates the confusion that can arise when using both drugs, and the similarity of the drug rashes and fever found. The temperature does not necessarily drop immediately after the cessation of the drug in P.A.S. sensitization, but it is clearly as well to stop both drugs at the onset of pyrexia and rashes.

I am indebted to the Medical Director-General of the Royal Navy for permission to publish this case.

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Surgeon-Lieutenant, R.N.V.R.

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Effects of A.C.T.H. on Hunner's Ulcer of the Urinary Bladder

Hunner's ulcer (chronic interstitial cystitis, or elusive ulcer) is an uncommon condition occurring almost exclusively in women, generally of middle age. The symptoms, which resemble those of urinary tuberculosis, are severe suprapubic or urethral pain, frequency of micturition, and occasional haematuria. There is a great diminution in bladder capacity, and attempts at distension cause severe pain. On cystoscopy one or more reddish areas or ill-defined "ulcers" may be seen on the fundus and lateral walls of the bladder. The lesion may appear as a whitish area with surrounding vascularity. Occasionally the ulcer presents as a linear crack with capillary bleeding when the bladder is distended. Elsewhere the bladder mucosa has a normal appearance. The urine generally contains a few leucocytes and red blood cells, and is sterile on culture. Microscopical examination of the affected bladder shows areas of vascular engorgement, round-cell infiltration, and fibrosis of the submucosa, extending to the muscular coats and perivesical tissues. When the process extends towards the mucosa ulceration may result. The ureters are affected occasionally, and stricture may occur.

Several theories have been advanced to explain the nature of the condition, but the cause is unknown. Treatment is unsatisfactory; this is doubtless related to the uncertain aetiology and chronic nature of the complaint, which is of insidious onset and generally progressive. Intravenous neoarsphenamine, bladder lavage with various medicaments, over-distension under anaesthesia, fulguration, and partial cystectomy have not produced any lasting benefit. Severe intractable cases occasionally warrant transplantation of the ureters into the bowel.

Diagnosis is established on routine urological investigation, and, when urinary tuberculosis has been excluded, is based on the following criteria: (1) severe suprapubic pain and frequency of micturition in women; (2) marked limitation of bladder capacity with severe pain on distension; (3) a sterile urine; and (4) the characteristic cystoscopic appearance.

TREATMENT

On the assumption that Hunner's ulcer may have some aetiological relationship to adrenocortical activity, it was decided to treat with A.C.T.H. patients in whom a diagnosis of this complaint had been established. Five cases were treated, and the following procedure was adopted. During the first week in hospital routine investigation was carried out, including blood and urine analysis, cystoscopy, and measurements of bladder capacity. Biopsy was not performed, as it was thought that this might complicate interpretation of the cystoscopic appearance. For the next three weeks A.C.T.H., 50 mg. daily, was given in equal doses every six hours. Cystoscopy and estimation of bladder capacity were repeated at the end of the course of treatment and at varying periods after the patient's discharge from hospital. Throughout, note was made of the frequency of micturition and any variation in pain.

The immediate results of treatment are given in the Table. These may be summarized as follows: (1) A.C.T.H. had no lasting effect on bladder pain. Three cases were relieved during the course of injections, but the pain recurred subsequently. (2) Frequency in micturition was slightly diminished in four cases. (3) Bladder capacity was increased in three cases. It was unaffected in one and diminished in another. (4) The cystoscopic appearance of the lesion showed no appreciable change.

Effects of A.C.T.H. on Hunner's Ulcer

Case	Age and Sex	Duration of Symptoms	Effect on Pain	Frequency of Micturition		Capacity of Bladder	
				Before	After	Before	After
1	F 73	7 yrs.	No effect	Day 12–20 Night 8–9	Day 12–20 Night 8–9	oz. ml. 3 85	oz. ml. 3 85
2	F 60	1½ ,,	Relieved	Day 12–16 Night 6	Day 4–8 Night 2–3	7 200	5 142
3	F 49	2 ,,	,,	Day 12–16 Night 3–4	Day 6–12 Night 3–4	6 170	7 200
4	F 74	6 ,,	No effect	Day 12–16 Night 10–18	Day 6–8 Night 6	4 114	11 312
5	F 68	2 ,,	Relieved	Day 12–20 Night 8–10	Day 8–10 Night 5–6	4 114	6 170

Cystoscopy showed no change of appearance in any of the cases.

COMMENT

In this series of five cases there was no marked response of Hunner's ulcer to A.C.T.H. therapy. Some patients showed slightly symptomatic improvement during treatment but relapsed subsequently. This is in accordance with the results published by Weaver and Tyler (1951). It is possible that with a larger number of cases and increased dosage for a longer period better results may obtain. No untoward reactions were observed during treatment. We believe that the alleviation of pain during treatment with A.C.T.H. is due to the well-known pain-relieving properties of this drug. The continued severity of symptoms in one patient necessitated transplantation of the ureters into the bowel.

We wish to thank Dr. B. Barling, of St. James' Hospital, for access to the supplies of A.C.T.H. for these trials.

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Reviews

HAPPY AT WORK

Careers in Medicine. By various authors. Edited by P. O. Williams, M.A.(Cantab.), M.B., B.Chir., M.R.C.S., L.R.C.P. Foreword by Denis Brinton, D.M., F.R.C.P. (Pp. 265. 15s.) London: Hodder and Stoughton Medical Publications. 1952.

Although there has been a good deal of talk about the selection of medical students, little has been said about their choice of careers after graduation. The present book is intended to fill this hiatus, and it fills it very well. It confines itself to describing the opportunities available, which is commendable in these days when so many people are infected with the desire to regulate other people's lives. Sociologists have discovered that in stable cultures the average man is capable of filling the different offices in society, and we have recently seen that it is all too easy to produce an excess of neurosurgeons or thoracic surgeons or other once *rarae aves*. This is not to say that men are equal but rather that the qualities which differentiate them and the manner in which these qualities are displayed will be different in the Welfare State from what they were in the acquisitive society. The process of self-selection for the higher posts in medicine has been less rigorous since the initial steps to specialization have become so deceptively easy, but the law of supply and demand continues to act, if anything more rigorously than before. The mistake of the men who have crowded into training posts since the war is that they have not shown enough awareness of the state of the market for consultants. There is still a sellers' market for psychiatrists, radiotherapists, casualty surgeons, and in several other branches, but general physicians and surgeons have long been in excessive supply. This is in part due to an out-of-date and layman's view of relative values in medicine. As this book shows, the clinical pathologist and the diagnostic radiologist are becoming the key figures in the practice of medicine, round whom the hospitals and the work of consultation revolve, and the heyday of the Dawsons and Moynihans has passed.

It is a defect in our medical education that the student entering medicine, usually with the idea of general practice, is kept for six to nine years in an artificial environment and is not shown the variety of work available. Here, in this book, are nearly 50 authors writing about as many different careers—in the basic sciences and academic units; in medicine, surgery, obstetrics, and pathology, with their numerous specialties and ancillary services; in legal and social medicine, and in the Armed Forces and public services at home and overseas. The writers describe not only their work, but also training, prospects, and opportunities for travel and membership of societies. General practice is ably discussed by Dr. G. O. Barber, but the subject is hardly given enough space in comparison with that devoted to the specialties. There is an appendix on higher qualifications, diplomas, and courses. The conclusion appears to be that with the coming of a comprehensive health service much has been gained and something lost for those making a career in medicine, and the contributors to this volume are all happy in their work.

L. J. WITTS.

RESPIRATORY DISEASES

Essentials in Diseases of the Chest for Students and Practitioners. By Philip Ellman, M.D., F.R.C.P. Foreword by Sir Robert Young, C.B.E., M.D., F.R.C.P. Oxford Medical Publications. (Pp. 400; 192 figures. £1 10s.) London: Geoffrey Cumberlege (Oxford University Press). 1952.

In the past, chest disease has been comparatively neglected by writers of textbooks. Recently a number of specialists seem to have been almost simultaneously inspired to remedy the defect, and the student may have some difficulty in selection. If a concise, straightforward, accurate, and readable outline of the subject is required, Dr. Ellman's book is likely to be one of those most often chosen. There is a brief but excellent account of the structure and function of the respiratory system, followed by sections on all the main respiratory diseases. Eight of the 29 chapters are on pulmonary tuberculosis. In a useful final section the author gives an account of the practical procedures used by a chest physician in diagnosis and treatment. There are many illustrative radiographs. Although these are reproduced as positives the quality is admirable, and many are accompanied by line diagrams which clarify the important points. On the other hand a number of case histories are included which add little to the text or to the interest; these could well be omitted from later editions.

The author is most convincing when he is obviously drawing on his personal experience, and in one or two places this has made the book a little lopsided. Chronic bronchitis, one of the commonest of chest diseases, is allotted two pages, while pulmonary asbestosis receives seven. In a book embracing such a wide subject, naturally there are a few other criticisms. For instance, the higher mortality from pulmonary tuberculosis in older men, which has become obvious in recent years, is not "unaccountable," but is probably caused, as Springett has shown, by the ageing of a generation which has carried a high mortality from the disease throughout. Again, it would surely be wise to mention the possible emergence of drug-resistant tubercle bacilli in patients treated with streptomycin, and the means of preventing this by giving P.A.S. simultaneously. The vast increase in incidence of carcinoma of the lung is attributed to improved methods of diagnosis, and the author paints a surprisingly rosy picture of the results of surgery. But these are minor criticisms among the many sections which are admirably and accurately written. On the whole the book represents the best British practice and can be confidently recommended to the students and practitioners for whom it is intended.

J. CROFTON.

THE E.E.G. IN CLINICAL MEDICINE

Electroencephalography in Clinical Practice. By Robert S. Schwab, M.D. (Pp. 195; illustrated. £1 12s. 6d.) Philadelphia and London: W. B. Saunders Company. 1951.

This book is written by a neurologist who was one of the first in the United States to apply electroencephalography to clinical problems. In his 200 pages he gives an exceptionally clear account of the normal and abnormal E.E.G., the common techniques in use, and the value of the method in clinical medicine. Apart from the advantage that the book is written by a clinician for clinicians, it is to be recommended on the grounds of its readability, for the writer's account of his subjects spares the general reader from the uneasiness which results from ignorance of electronics. If occasionally the definitions of technical terms and the precise descriptions given in the glossary offend the technical expert, the clinical reader will welcome the technical chapters because they are written in a way that can be understood without special knowledge. The chapter on neurological and neurosurgical problems contains sections on electrocorticography and the surgical treatment of epilepsy, the latter being a new field of neurosurgery which has been made possible by the direct recording of electrical activity from the exposed brain at operation.

This book is not a work of reference to a subject which has now grown to great proportions, nor is it a manual for the technician involved in the day-to-day practice of electroencephalography, but it is written essentially for the clinical reader, be he neurologist, psychiatrist, neurosurgeon, paediatrician, or general physician. For all these, and for the final-year medical student, the book can be recommended as an excellent short account of an important laboratory method.

DENIS HILL.

PRACTICAL PHARMACOLOGY

Practical Pharmacology. By Professor J. H. Burn. Illustrations by E. M. Vaughan Williams. (Pp. 72; 43 figures. 12s. 6d.) Oxford: Blackwell Scientific Publications. 1952.

This book is a description of a series of practical exercises which may be carried out during one term by medical students, but it differs from books used at other universities mainly by its illustrations. One set of figures shows the necessary equipment and the operative procedures, and the other brings examples of representative tracings or graphs obtained in actual experiments carried out according to the instructions laid down in the text. Consequently the use of the book is not restricted to groups of medical students or their teachers conducting a course in practical pharmacology. Because of the large scale and clarity of the drawings, the book should enable the most inexperienced person who wishes to learn pharmacological methods to set up the apparatus and carry out the experiments practically unaided. Such persons may be either workers in other branches of science who require pharmacological techniques for their problems, or teachers at medical schools in which practical classes in pharmacology are being newly introduced. It is for those "outsiders" that the inclusion of actual tracings obtained by the methods will be most helpful. For the medical student who has to perform his experiments within a given time, the availability of a sample result may represent a temptation not to try very hard to obtain a result himself; it will be for the teaching staff in charge of the class to avoid this danger and also to ensure that the student will carry out his observations unbiased by what he is led to expect the result will be. Most of the experiments selected are on isolated organs; for the remainder decerebrate or spinal animals may be used. Two experiments which the students carry out on themselves are included.

The book is beautifully produced and should greatly encourage adequate teaching of practical pharmacology by showing that the basic principles can be demonstrated elegantly with comparatively simple equipment.

MARTHE VOGT.

COMMONER VIRUS INFECTIONS

The Essentials of Virus Diseases. By Patrick N. Meenan, M.D., D.C.P. (Pp. 260; illustrated. £1.) London: J. and A. Churchill. 1951.

This little book ably fulfils its purpose of providing the student and general practitioner with a readable and up-to-date account of the commoner virus infections. After briefly describing the characteristics of viruses, the applications of modern methods to their study, and measures for control of virus infections, the author gives concise accounts of individual diseases and finishes with a useful summary of how to collect and transmit to the laboratory the specimens which are required to enable the virologist to help in the diagnosis of various conditions.

The book is not intended as in any way a fundamental book on the subject. Provided its limitations are appreciated, it should form a useful introduction. Some of the views expressed would not be universally accepted. For example, it was surprising to read (p. 75) that the finding of cold agglutinins in primary atypical pneumonia would "outrule other virus infections," and that herpetic meningoencephalitis carried a "good" prognosis (p. 122). Kaposi's varicelliform eruption is now generally regarded as a clinical syndrome rather than a single aetiological entity, and perhaps Dr. Meenan is over-optimistic about the efficacy of vaccination performed after exposure to smallpox.

In general, however, the book offers sound advice and is particularly useful in relating to one another the problems of the general practitioner and the laboratory worker. The absence of lists of references is unlikely to inconvenience those readers for whom the book was written and has facilitated compact presentation.

THOMAS ANDERSON.

DISEASES OF THE FAMOUS

Medical Biographies. The ailments of 33 famous persons. By P. M. Dale, M.D. (Pp. 259; 32 illustrations. $4.) Oklahoma: University of Oklahoma Press. 1952.

Apart from their own ailments, most people take the greatest interest in the diseases which affect famous people. In this book the author admits that his appeal "is directed at the layman," for "the eager appetite of the literate public for biographical fare, coupled with recent interest in medical science, has seemed to make it timely." In effect the book comprises 33 thumb-nail biographical sketches of well-known historical persons with special reference to their serious illnesses. As such it will interest doctors and many laymen. The list contains the names of kings and emperors, poets, men of science, philosophers, and three presidents of the United States. The mother of Abraham Lincoln is included because she suffered from a curious disease, but we miss the story of the illnesses of the president himself.

These lives give plenty of variety, but there is little system in the choice. The author makes some comments on the British way of life. He says of Mary, the daughter of Henry VIII and Catherine of Aragon, that "she lived to rule England and was called 'Bloody Mary' with better discrimination than Englishmen generally exercise in the application of the adjective." He writes: "John Paul Jones was yet able to strike blows that rattled the teeth and addled the brains of the lords of the British Admiralty," but he does not so much as mention by what means he performed that wonderful deed. In connexion with the appointment of Sir Isaac Newton as Warden of the Mint, he quotes E. T. Bell with apparent approval: "The crowning imbecility of the Anglo-Saxon breed is its dumb belief in public office or an administrative function as the supreme honor for a man of intellect." When evidence is inconclusive, causes of death must be surmised, but we would agree rather with the view of Lord Sheffield than with that of the author on the cause of death in the case of Gibbon.

There are some curious facts to be gleaned in these pages: Napoleon knew all the officers' names in every regiment in France. Immanuel Kant every day rose promptly at 5 a.m., went for a walk at 3.30 p.m., and went to bed at 10 p.m.; he kept the temperature of his study constantly at 75° F. When Leibnitz challenged the mathematicians of Europe with a difficult problem, Isaac Newton, when aged 74, received the problem on one evening and sent off the correct solution first thing next morning. We noted one useful definition: "Mathematics is a high level system of thinking." This book is readable and interesting, and the illustrations are good.

ZACHARY COPE.

William Harvey's great classic *De Motu Cordis* not only stands pre-eminent for its originality but has the added attraction of being brief indeed by modern standards. First published in Frankfort-on-Main in 1628, it immediately became the subject of heated controversy, though soon of general acclaim. Harvey's interpretation of the facts as he found them was the more daring in that some years were to elapse before the capillaries, the missing link in the circulation, were first seen under the microscope by Malpighi. A translation of Harvey's work—*Circulation of the Blood and Other Writings*—has recently been reprinted in the Everyman Library (J. M. Dent. 5s.), and many medical students will enjoy the contact it affords with the mind of one of their most illustrious predecessors.

The 29th (and largest) edition has recently appeared of that invaluable compendium the *Commonwealth Universities Yearbook* (G. Bell and Sons, Ltd. 28s. to university staffs, £2 2s. to others). It includes detailed information on the teaching courses, examinations, scholarships, and special facilities available at universities throughout the United Kingdom and Commonwealth. Though the preface points out that fuller details are to be found in the publications of individual universities, so much has been crammed between the covers of this book that recourse elsewhere cannot often be necessary.

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WORLD CONFERENCE ON MEDICAL EDUCATION

The World Medical Association is to hold in London in August of next year a World Conference on Medical Education. This decision was announced at the meeting of the W.M.A. in Stockholm in 1951. The W.M.A. invited Unesco and the World Health Organization to join with it in this venture. The W.H.O. welcomed the proposal, decided to come in as a partner with the W.M.A., and is contributing to the cost of the conference. The B.M.A., as a member of W.M.A., will be responsible for making the arrangements for the conference and for seeing to the comfort and welfare of the visiting delegates. The W.M.A. represents some 700,000 practising doctors throughout the world, and the W.H.O. the Health Departments of nearly 70 nations. That these two big organizations should come together in a common purpose is in itself a happy circumstance, especially when that common purpose is fundamental to the practice of medicine whether by general practitioner, specialist, or public health officer.

At the beginning of this year Sir Henry Cohen accepted the W.M.A.'s invitation to be President of the conference, but his recent illness made him reluctantly decide to resign from this post, as the task of preparing the programme was urgent and pressing. The W.M.A. then invited Sir Lionel Whitby to preside over the conference and Professor W. Melville Arnott to act as Deputy President. They have both agreed to act in these capacities, and during the past six weeks have with a small committee been hard at work in planning a provisional programme for the consideration of the full programme committee which meets in London at the end of next month.

The conference itself will begin on August 22, 1953, and end on August 29. The work will be divided between four main sections: (1) Requirements for Entry into Medical Schools; (2) The Aims and Content of the Medical Curriculum; (3) Techniques and Methods of Medical Education; (4) The Place of Preventive and Social Medicine in the Curriculum. Dr. Victor Johnson, of the Mayo Foundation, will be the Vice-president in charge of the first of these; Sir Arcot Mudaliar, of the University of Madras, of the second; and Professor René Sand of the fourth. It is hoped that a distinguished medical man from one of the South American republics will preside over the third section. The conference will concern itself with undergraduate medical education, and not go beyond this. Indeed, it could not hope to do so within the short space of one week. The majority of those who take part in the work of the conference will do so by invitation, as it will be principally a conference of experts.

So much for the bare facts. It is probably no accident that the idea of holding such a conference cropped up when it did. In Britain many reports on medical education have been published in recent years—by the Royal College of Physicians, by the British Medical Association, and by the Goodenough Committee. As Dr. Morgan Jones puts it elsewhere in this issue, "the time has come when we must face the problems of medical education afresh, in the light of the great changes in medical practice." This is the task before next year's conference. It will seek not to prepare a detailed curriculum, but to face the problems in front of teacher and taught at every stage of the long path that leads to qualification as a practising doctor.

The first question to be asked is, "What sort of a boy or girl do we want to enter medicine?" And the second, a corollary to the first, is, "What sort of a doctor should the medical schools aim at producing?" Neither of these questions can be answered adequately unless we are clear about our conception of medicine as a university discipline. If medicine is to live up to its claim to be one of the learned professions it must pay more than lip service to this ideal, or it will become a mere technology. The Goodenough Report recommended that the medical undergraduate should be trained only in medical schools that are integral parts of universities: "Medicine is a branch of human thought and activity that demands and provides opportunities for the fullest development of humanistic and scientific talents. It is a branch of higher learning, and the most favourable training ground for those who follow it is in the recognized centres of higher learning—the universities."[1] If medicine is, as it should be, a branch of higher learning, then it must be a profession for the student of more than average ability, for one who can rightly claim the privilege of entering a univer-

[1] *Report of the Inter-departmental Committee on Medical Schools.* H.M.S.O., London. 1944. Price 4s. 6d. net.

sity. This being so, the teacher of medicine will want to be sure that the school education of the future doctor will enable him to develop "humanistic talents." Yet the present danger is that the schoolboy and schoolgirl are being forced by the pressure of examinations to specialize in science at too early an age. At the conference next year it is hoped to hear the views of schoolmasters, as well as of medical teachers, on this subject.

Medicine, as a science, is becoming each year more and more exact. While this means that the student will have to acquire new skills and learn new facts, it is more important than ever that he should become imbued with the scientific method. There is still a lot of lumber in the medical curriculum, much of what is learnt and taught being determined by the examination paper. The student has to cram his mind with all sorts of medical oddities for fear one of these may crop up in his final examination. Many facts the student has to learn. But what wants to be drawn out of him is a capacity for logical deduction from facts learnt and observed. It is the method of approach that matters most, and it is good to see that the conference next year will have a special section in methods and techniques of teaching.

What is needed is to provide a medical education which will serve as a sound basis for any future medical career after qualification. The majority of doctors become general practitioners, the most exacting of all forms of practice. In its paragraphs on "The Aim of Undergraduate Medical Education," the Goodenough Report stated: "In our opinion a general practitioner should possess a scientific foundation for his professional work and a proper outlook on the social aspects of medicine and the promotion of mental and body health." The social aspects of medicine have been gathered together under the somewhat misleading term of "social medicine," which might be more concisely replaced by the term "human ecology." In one sense all medicine is "social medicine," but it is becoming recognized as an academic discipline, and its place in the medical curriculum is to be one of the themes of the conference, a theme of particular interest to the World Health Organization.

A year hence medical teachers from all over the world will meet in London to read papers on and discuss outstanding problems of medical education, problems which, as Abraham Flexner said, are the problems not of medicine as much as of education. After the talk has died down and the proceedings have been published, it is hoped that at least some action will follow, however slowly.

THE INTERN YEAR

Every medical student in Britain who passes the qualifying examination after next January 1 will have to spend a year doing hospital jobs before being admitted to the *Medical Register*. This is a provision of the Medical Act, 1950, and is administered in detail by the General Medical Council. It affects not only those who are qualifying but also the organization of the Health Service and the armed Forces. For the student it means that he must take two different house jobs of six months as house-surgeon, house-physician, or obstetric house-surgeon in a hospital approved by any one of the licensing bodies (usually the university in each regional hospital board's area) and designated in a list to be published by the G.M.C. about September 30. There are already over 3,000 posts approved on this list. As soon as the new doctor obtains his first post he will be eligible for admission to the *Provisional Register* kept by the G.M.C., which confers on him the full legal rights of a medical practitioner—such as prescribing dangerous drugs and signing certificates—but only so far as is necessary for him to do the full work of a houseman. He will not, for instance, be able to take unapproved hospital jobs or to work in antenatal clinics, or as an assistant or locum in general practice, or as a medical officer in public health or one of the Services. After holding each approved post the intern should obtain a certificate of satisfactory service. This will be given by the employer and sent to the appropriate licensing body (university, Conjoint Board, etc.), which will inform the G.M.C. when two satisfactory certificates have been received. The intern will then be eligible for admission to the full *Medical Register*, and free to practise as he likes. But a man can remain on the *Provisional Register* for as many years as he wishes, and likewise there is no compulsion to start the intern year immediately on qualification—though it may be difficult to find an approved post if the gap is long. In Eire passing the qualifying examination will automatically admit to the *Provisional Register*: elsewhere it is necessary to get a post first.

This new scheme will present some advantages as well as some difficulties to the hospitals. Nearly all newly qualified doctors already do one house job, but only about half of them stay on for a second. One effect of the new intern year therefore will be to increase the number of available housemen and to ensure that they go to work in approved hospitals, which will benefit accordingly. Regional boards are at present discussing, on the advice of the Ministry of Health,[1] how to set up central bureaux to handle the

vacancies and applications for all the hospitals in each region and to keep in touch directly with medical schools. Hospital management committees are trying to arrange for the majority of posts to fall vacant when the majority of students qualify. If these plans can be made to work satisfactorily students will have no worry of unemployment immediately after qualification, and most approved hospitals will be sure of a junior staff. But hospitals not approved will suffer. Though their posts may be up-graded, the effect of the scheme will be to make a sharp division between the two types of hospital. At present, since house posts start and end at any time during the year, a good man may take a job in a poor hospital to avoid temporary unemployment; in future nobody will want to start in a hospital which has no designated posts if he can avoid it. The medical services of the Army and the R.A.F., which rely largely on conscripted doctors, will have a negligible intake of new medical officers in the period January to June, 1954, since students who qualify next summer will all be starting their second internship early in 1954 instead of being ready for call-up. It is likely, therefore, that to compensate the Services postponement of call-up or exemption from service after the completion of the intern year will be only very grudgingly granted. The details are yet to be decided, but the conditions will be stricter than at present. Other fields of professional medicine are unlikely to be affected.

By and large the young doctor stands to benefit by all this. He is guaranteed 12 months' employment with normal N.H.S. pay and conditions of service. He gives up his freedom to take any job he fancies, and perhaps thereby the ability to pay off his debts. If he is a married man he has to forgo the joys of home life for a year. The young medical woman—about one-fifth of medical students are women, and the proportion is increasing—suffers somewhat more, since the intern year makes married life very difficult. Married medical women often combine the cares of housekeeping and children with part-time work in clinics. In future this will be impossible until they have done their two house jobs. It may be that this will encourage more women students to give up medicine as soon as they qualify, unless hospitals can relax their rules of residence. No doubt the intern scheme will have its teething troubles, particularly in providing enough posts at the right moment, since a proportion of Irish students must also be found intern jobs in England, and at least 500 Commonwealth doctors come here annually. South Africa has had a compulsory intern year since 1949, and hospitals in Britain are approved for its completion. There seems no reason why this system of medical exchange should not operate in both directions, and throughout the Commonwealth, so that the intern year will serve not only to raise the standard of medical practice in Britain but to bind together on a common level the medical men of all the Dominions.

[1] R.H.B. (52) 85.

THE TRAINEE ASSISTANTS' SCHEME

For generations most general practitioners have begun their careers as assistants, either from choice or from financial necessity. Whatever the motive, the experience gained in this often hard school stood them in good stead in subsequent independent practice. Since the establishment of the National Health Service assistantships in general practice, though still a matter for private arrangement as before, have for the first time been officially encouraged. The Government, accepting the recommendations of the Spens Committee and its responsibilities towards the young practitioner in a service paid for out of national funds, decided in 1948 to contribute towards the cost of an apprenticeship scheme for those of the newly qualified who had not previously been in general practice and who wished to be trained. Thus the Trainee Assistants' Scheme was born.

The aim of the scheme is, or should be, essentially educational. Many welcomed this new form of graduate education (a better term in this case than "postgraduate") as a forward step. Four years is too short a time, and the numbers trained are as yet too few, for the scheme to have any effect on the standard of general practice. In such an individual kind of medical education so much depends on the relationship and personalities of both trainer and trainee, and on many other factors, that it is difficult to reach a reliable conclusion. Nevertheless a provisional assessment of the value of the scheme should be made.

The Trainee Assistants' Scheme began under a general misconception of its real educational purpose. There were, for example, complaints that the trainer regarded the trainee not as a pupil but as a cheap form of labour. The trainers were not always selected with enough care, or did not live up to their expectations as teachers. Although the Ministry laid down sound criteria for the selection of trainers, the local medical committees were faced with an invidious task in applying these to an applicant trainer, a professional neighbour and colleague. For this reason, more than one local medical committee with a lively sense of its duties suggested that the scheme should cease. Other committees

accepted most applicants without too much inquiry. In neither case was the situation a happy one. The General Medical Services Committee, aware of these faults, set up in November, 1950, a subcommittee to review the Trainee Assistants' Scheme. Among its recommendations the subcommittee[1] suggested that, instead of the whole local medical committee, a smaller selecting body would be more suitable for the task, made up of a small number of senior members of the committee, and representatives of the universities. They should be appointed for three years and authorized to reach a final decision. The subcommittee also stressed the importance of personal interview of both applicants to ensure, so far as possible, their suitability for each other. If the subcommittee's recommendations are adopted, and it is to be hoped that they will be, much will be done towards achieving that proper selection of teachers which is essential if the scheme is to be successful.

Last year there were 360 trainee applicants for assistantships under the scheme—a figure that falls far short of the 2,000 or so envisaged in the Spens Report. This shows that young doctors prefer other ways of entry into practice. One explanation may be that a trainee assistant cannot be taken on "with a view," and that after his year's training he must seek employment elsewhere. With the advent of the compulsory pre-registration year in 1953, and consequent lengthening of the period of training in medicine, young doctors may be still less inclined to postpone further the day of reaching the status of principal. It might be unwise to add, after the pre-registration year, another year of compulsory training in general practice; it would seem that the Trainee Assistants' Scheme will have to compete on its own merits for the favourable support of young practitioners.

In any event it seems unlikely that large numbers of young doctors will become trainee assistants. The greater the care in selecting suitable trainers (of whom the number must be limited), the more will the scope of the scheme be restricted. But quality is the thing, not quantity, and, as Sir Francis Fraser says elsewhere in this issue, "the effects of the scheme both on the trainers and the trainees should enhance the efficiency and prestige of general practice to a continually increasing degree. The results should be carefully watched and the scheme modified in the light of experience." It is to be hoped that many of the trainers of the future will come from the ranks of the present trainees. This would be the best testimony to the success of the scheme, which is still in a formative stage.

[1] *British Medical Journal Supplement*, 1951, **2**, 92.

REFRESHMENT

To say that a problem is purely academic is to judge it with almost a hint of contempt, and professional men, because of the special responsibility they owe to their patients or clients, are more apt than most to take a utilitarian view of knowledge. Yet many a medical student has left his medical school for the last time with a momentary regret (if he has been properly taught) that he may never again hear the daily academic discussions on the finer points of medicine, discussions that sometimes prevented him from learning something more useful for passing exams or even for treating patients. Complaints are often made that the training for medicine is too remote from the practice of medicine, especially if it is general practice, and that medicine itself has become too vast to allow of time being spent on learning anything but the essentials needed for its efficient practice. There may be some truth in the complaints, but while medicine remains a learned profession it should surely be the task of the universities to try to provide its aspirants, as most of them still do, with a liberal rather than a strictly utilitarian education.

Advocating much the same proposition in Dublin exactly 100 years ago, Newman[1] defined his idea of a liberal education as that "process of training by which the intellect, instead of being formed or sacrificed to some particular or accidental purpose, some specific trade or profession, or study or science, is disciplined for its own sake, for the perception of its own proper object, and for its own highest culture." He added that the question whether education should be liberal or utilitarian was being "keenly debated in the present age." That much of the medical course must be utilitarian in aim is beyond question. But, as Dr. Morgan Jones points out on another page, education, not technological training, is the concern of a university. And that some of it should be academic is much to be desired, if only because, to quote Newman again, "the result of a scientific formation of mind" is the power "of sifting out the grains of truth from the mass, of arranging things according to their real value." This is the daily task of every practising doctor, and he is unlikely to do it efficiently if his education taught him only to memorize signs, symptoms, differential diagnoses, and so on, but not to think.

Most doctors feel the need periodically to refresh their memory of much that they learnt as students but have rarely, perhaps never, encountered in practice, and to learn about the new methods of treatment or diagnostic devices that add to the refinement of medical technique every year. And sooner or later they must "regain contact with a centre of critical thought," writes Sir Francis Fraser in our opening pages. Besides reading periodicals and books they can attend refresher courses organized by the universities and medical schools throughout Britain, and general practitioners in the National Health Service can obtain financial assistance to do so. It might be thought that such courses would

[1] J. H. Newman, *On the Scope and Nature of University Education*, 1852.
[2] *General Practice and the Training of the General Practitioner*, 1950, B.M.A.

serve only the strictly utilitarian function of bringing the doctor up to date, but reports from some of those who have attended them suggest that they do much more. They have been found not merely to refresh the memory but to stimulate again that "scientific formation of mind" without which the art of medicine degenerates into histrionics.

The courses are of various kinds—intensive or spread over several weeks or months—and particulars of them are advertised from time to time or may be obtained from the postgraduate dean or director of the university in the applicant's area (or the Postgraduate Medical Federation in London). The conditions by which a general practitioner is eligible for financial assistance may differ slightly in the various countries of Britain, and again information about them can be obtained from the postgraduate deans. Normally the doctor pays nothing for the course; he receives travelling and subsistence allowances if required, and payment (where approved) for a locumtenent up to a maximum of 14 guineas a week. So far over 3,000 general practitioners have taken the courses in England, and the general opinion seems to be that they fulfil their purpose admirably. Criticisms of them are mainly of two kinds—first, that some subject was presented in a dry-as-dust manner, a mere recapitulation of textbook material; secondly, that the lecturer was not sufficiently familiar with the work of general practice, discussing a highly theoretical or technical subject without relating it to the general body of medicine. Clearly the teaching must be of a high standard, especially as there is no exam at the end to compel attention to the instruction, and the teachers should therefore be chosen so far as possible for their excellence as teachers. There is also much to be learnt in this branch of education, as in others, about the best way of presenting the material.

The classes should not be too large, or personal contact between the teacher and his audience will be tenuous, and demonstrations and discussions are usually preferred to lectures. There is scope for some kind of systematic inquiry to be undertaken among general practitioners who have attended the courses so that the teaching may be adapted to their needs, and it might provide helpful information for discussion at the meetings now held by postgraduate deans and committees.

But, whatever is taught at the courses, they must all share, if they are to succeed as they deserve to do, the qualities of being attractive, enjoyable, and memorable. The general practitioner should return to his practice, as a report[2] of the B.M.A. puts it, "with not only a 'brain-dusting' but with new knowledge and mental re-creation, and the benefit will be passed on to his patients." If he is to obtain this deeper refreshment than the title of refresher might seem at first to imply, the courses must combine in carefully thought-out proportions the academic with the practical, and be a stimulus to fresh thought rather than a catalogue of recent advances. The first claim on these courses is for practical, apposite instruction, but it can be met only if there is sufficient of the academic approach to illuminate the practical with meaning.

STUDY ABROAD

Time was when every young English gentleman set the seal on his education with a Grand Tour. He visited France and Italy and Germany to see their art and antiquities, and took the opportunity to meet their people and to see other ways of life than his own. A little of his provincialism was rubbed off; he realized that some of his beliefs were after all local myths and not eternal verities, and he came back loaded with new ideas about farming and philosophy and domestic architecture, and somewhat wiser than when he went. Such leisurely carefree days are no more. Travel is infinitely quicker and more convenient, but passports and currency restrictions block the way, and high taxation has robbed most young gentlemen of the necessary means. This is particularly sad for medicine. Britain has always received great medical stimulus from abroad, first from Italy and France, then from Holland, latterly from Germany and Vienna, and now from the United States. It is true that through *Abstracts of World Medicine* and similar periodicals and through foreign books and journals (which international rates of exchange often make very expensive), the British doctor can keep to some extent in touch with work abroad. But medicine is above all a practical art and cannot be adequately learnt from the printed word alone. Nothing replaces the practical demonstration and the informal face-to-face discussion for disseminating new techniques and original ideas. Nor is there anything quite like contact with the foreign doctor for blowing away a few medical myths, for encouraging a critical outlook through comparing "ours" with "theirs," for becoming a little wiser and more understanding.

The number of travelling scholarships and fellowships awarded annually is growing. Some of them are announced regularly in this *Journal* and in others. The *B.M.A. Handbook of Medical Scholarships*, published last year, contains particulars of quite a number; a Unesco annual, *Study Abroad*, gives a list for all countries in all subjects, and the British Council education division publishes a handbook giving details of about 90 scholarships offered by 15 foreign Governments for medical and other subjects. The Health Service makes some provision for aiding hospital doctors on foreign trips.[1] Many, but not all, of these aids to foreign travel and study take the holder to the United States, and these are naturally the most sought after. Two very readable articles in this issue, the first by Professor W. Melville Arnott and the second by Dr. C. F. Hawkins, show why British doctors usually find a visit to the United States so stimulating and educative. But it is worth remarking that in Holland and the Scandinavian countries English is widely spoken, and they also have much to teach, for instance, in the treatment of tuberculosis. Many people can muster a little French, which will grow with experience if forced, and the Ciba foundation, for example, offers short scholarships to French centres, while the Scientific Office of the French Embassy in London can give advice about French visits in general. Sometimes it is possible for a

[1] R.H.B. (49) 85 and R.H.B. (50) 49.

medical student or a doctor to become an intern in a French provincial hospital, by direct arrangement with the medical superintendent. Even if there are no new techniques of importance to be learnt, the contact with different ways will be stimulating and enlightening. More could in fact be done to promote this contact at very little cost by pairing off medical schools in different countries—Birmingham with Lyons, and Liverpool with Marseilles, shall we say?—and arranging a short interchange of students now and then for a fortnight or a month. The same thing is possible between local medical societies in, say, Leicester and Lille, where exchange of hospitality and the chance to see local practice and local hospitals can be combined with a holiday. If nothing else, such contacts would help to remind us how the other half lives, and prevent us from falling into the smug nationalism which modern restrictions encourage.

A REFORMER OF EDUCATION

One hundred and twenty years ago Dr. Daniel Drake, who was then professor of medicine in the Medical College of Ohio, wrote a book on medical education, now reprinted as a volume in the Publications of the Institute of the History of Medicine.[1] His family went west in 1788 "in the hope of improving their social stations and fortunes," and Daniel went with them. The family library, so the introduction to this attractive book tells, consisted of the Bible, hymnals, *Pilgrim's Progress*, one novel, an arithmetic, spelling books, and an almanac. Among his other early reading Daniel read Lord Chesterton's *Letters to His Son* and a pocket dictionary. Thus equipped, he became apprenticed to a Dr. William Goforth at the age of 15 years. After four years as apprentice and then as partner Daniel Drake received his diploma from Dr. Goforth, who certified that he had studied physic, surgery, and midwifery: "From his good Abilities and Marked Attention to the Prosecution of his studies, I am fully convinced that he is qualified to practice in the above branches of his Profession." Armed with this, Daniel Drake spent a year in the medical department of the University of Pennsylvania, where, in 1816, he received the degree of M.D. Nearly 100 years later Sir William Osler wrote: "I hope to see some rich Cincinnatian put up a $25,000 monument to him—he is worth it." And anyone reading his reprinted essays must feel the same, for out of them comes a portrait of the physician at his best.

Dr. Drake was sharp in his criticism of the profession as it then was in America. "Although medicine," he wrote, "is ranked with the *learned* professions, not a few of its professors [i.e., practitioners] are signally deficient in learning." He found many of them illiterate and their school education defective. The intending medical student, he thought, should have "a competent knowledge of the elements of physical geography, general history, the art of composition, algebra, geometry, and mechanics." And he was a strong advocate of classical learning. Of the qualities to be looked for in a teacher he included "sound morals and chastened habits," noting that in the U.S.A. intemperance was looked upon as a prevailing vice of the profession . . . "boys almost from necessity have been apprenticed to drunken doctors." Dr. Drake, though he began his career at the age of 15, thought that 17 or 18 was the proper age at which to begin the study of medicine, and that the medical course should last four years, instead of the 18 months to two years then customary. Twelve hours a day was enough for study, leaving seven for sleep, two for meals, "and three for exercise, labour, and society."

Daniel Drake's essays can still be read with profit. He stressed, as we stress to-day, principle and method, and many of his sayings would serve as texts from modern instances. Thus he writes: "In medicine, as the other sciences, that method is best, which requires the students to take nothing on trust—to anticipate no principle or leading fact. The whole course should, therefore, as far as possible, be purely synthetical."

[1] *Practical Essays on Medical Education and the Medical Profession in the United States.* By Daniel Drake, M.D., 1832. The Johns Hopkins Press, Baltimore, and Geoffrey Cumberlege, London, 1952. Price 20s.

THE ART OF COMMUNICATION

The World Federation for Mental Health, which has just concluded an international seminar at Chichester on mental health and child development, devoted one of its sessions to the subject of communication, and some good points were made in introducing it by Professor G. P. Meredith, of Leeds. He pointed out that the teacher—like, one may say, the editor—must have the gift of selection. It is as important for him to know what to withhold as to know what to give. A man who knows so much about his subject as to be obsessed by it and to make it his life work may, in the absence of any capacity for teaching, not be able to communicate it at all. The expert who wishes to teach must be able to translate his message into language with which his hearers are familiar. It is often forgotten that in between the lecturer at the rostrum and the students in the hard seats—why are they always hard?—in the theatre there is much more involved than the direct relation of speaker and hearer. There are various intervening processes, and the lecturer must understand not only his subject but his hearers, projecting himself into their minds, understanding something of their aptitudes and mental structure, imagining their educational, even their emotional and temperamental, background. He is not a gramophone grinding out certain facts; he is an interpreter, and just as he would not dream of talking to a student in a language which the student did not understand so he should be wary of using graphs or mathematical symbols or technical formulae with students who may be unfamiliar with these things.

In medicine the art of translation is more and more needed as the language and the whole presentation of medicine becomes more technical. A collection recently made of the medical terms which have come into currency during the last 20 years shows 500 terms now in common use which would have meant nothing at all to the medical men of a generation ago, and probably the list is far from complete. Lecturers who assume that these new terms are familiar to their audiences are taking too much for granted.

REQUIREMENTS FOR THE Ph.D. DEGREE

BY

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The degree of Doctor of Philosophy is a research degree of about the same standard as the M.D. with commendation. It differs from the M.D. in normally requiring supervised work at the university and in being obtainable in any faculty. The general requirements for the Ph.D. were agreed on at an inter-university conference in 1919, and the regulations of all universities have much in common; they are, however, far from uniform, and show differences of opinion on such questions as the eligibility of non-graduates, the acceptance of work done part-time or outside the university, the thesis and examination requirements, and scales of fees. A student may be eligible at one university but not at another, and a review of the requirements may help prospective candidates; it may also interest Ph.D. committees, for some universities have evolved individual regulations worth studying by others. The main conclusion from this review is that in some matters a more liberal policy could be adopted without changing the character of the Ph.D. or endangering the standard. The information given here is of necessity selective, and anyone interested in the Ph.D. of a particular university should study the official regulations.

Educational Requirements

Degrees and Alternative Qualifications.—A Ph.D. candidate must be a university graduate or of similar educational standing. The normal requirement is a degree of an approved British or foreign university; all universities accept this qualification, and six—Dublin, Ireland, Liverpool, Nottingham, Oxford, and Sheffield—allow no alternative. Ireland accepts only graduates with honours or equivalent attainments; Dublin accepts honours graduates, graduates submitting satisfactory published work, and, exceptionally, "graduates with lesser qualifications." The other 14 universities accept suitably qualified non-graduates (Table I). Acceptance of the final examination for a degree in lieu of graduation probably dates from the time when women were allowed to take degree courses but not to graduate. Of the other alternatives, the most interesting are those of Cambridge and Reading. At Cambridge, where Ph.D. candidates must be research students, "in exceptional cases persons who hold no diploma or degree may be admitted research students, if they submit such evidence of general educational qualification as may be approved by the Board of Research Studies." At Reading "the degree of Doctor of Philosophy may be conferred upon graduates of other universities and other persons approved by the Senate."

TABLE I.—*Qualifications Required of Non-graduate Candidates for the Ph.D.*

Qualification	Accepted by
Final examination for a degree	Belfast, Birmingham, London, Manchester, Wales
Diploma or certificate equivalent to a degree	Aberdeen, Glasgow, St. Andrews
Approved qualification (unspecified)	Bristol*, Durham, Edinburgh†
Diploma of institution of university rank	Leeds
Diploma of Leeds University	Leeds†
Examinations for diploma of institution of university rank	London
Examinations for qualification of institution of university rank	Manchester
Approved evidence of education other than diploma	Cambridge†
Approval by the Senate	Reading

* In the Faculties of Science, Medicine, and Engineering, in exceptional cases. † In exceptional cases.

Language Requirements.—Two universities specify these. In the National University of Ireland, Ph.D. candidates "are normally expected to possess or acquire a reading knowledge of French and German" or other appropriate languages. At Edinburgh the minimum qualification is "in addition to a good knowledge of English, a reading knowledge of two modern languages." Evidence of proficiency is expected when the student applies for acceptance as a Ph.D. candidate. If this is not produced the department he wants to enter may impose a test; if the result is unsatisfactory admission may be refused, or be granted on condition that the student takes a course of instruction. A student failing to make satisfactory progress within a year may have to spend longer on the Ph.D. course.

Classification of Ph.D. Candidates.—Other requirements for the Ph.D. depend on the student's status, and it will be convenient here to use the classification of Ph.D. candidates given in the Sheffield regulations: (1) full-time research students; (2) part-time research students; (3) staff candidates; (4) hospital candidates; and (5) special candidates—those who transfer from one category to another.

Full-time Research Students

Length of the Ph.D. Course.—This depends on the student's previous experience. For students who have had a year's full-time experience of research or technical work (or its part-time equivalent) the course lasts two years; for others the course lasts three years. Most universities state that the course lasts two years, but these do not recognize students as Ph.D. candidates until they have had the requisite preliminary training. The other universities state that the course lasts three years, but this period includes the period of preliminary training. The universities giving three-year courses excuse one of the three years when the applicant's previous experience warrants it. The requirements of all universities are therefore in reality the same. The universities giving three-year courses are Aberdeen, Cambridge, Glasgow, Ireland, Reading, St. Andrews, and Sheffield. The period of two or three years (as the case may be) is a minimum, and longer periods may be prescribed for special reasons: Nottingham, for example, may require as much as four years' full-time work for the Ph.D.

Qualifications for a Two-year Course.—The experience required for admission to a two-year course (or remission of one year of a three-year course) can be judged from the alternatives acceptable to the University of Wales. These are: (1) the degree of master by research or advanced study; (2) one year's satisfactory research under supervision; (3) postgraduate research work of mastership standard; (4) two years' standing as a full-time teacher in the university; (5) one year's standing as a full-time research worker in the university; and (6) approved postgraduate technical experience. Sheffield accepts the degree of bachelor with honours (or an equivalent degree) or the degree of master by research. At Belfast a student completing his first year of research may either be accepted for a Ph.D. course or—if considered unfit—be allowed instead to take the appropriate master's degree.

Nature of Ph.D. Work.—The work is variously described as research, study and research, study or research, and training in research and research methods. In practice any formal study is probably limited to what is needed for the conduct of the research. The whole of the work for the Ph.D. is normally done at the university whose degree is desired, but as a rule part of the time may be spent elsewhere if the student's work would benefit; this privilege is sometimes restricted to the university's own graduates. Edinburgh and Reading may allow their own graduates to do all their work elsewhere if satisfactory supervision can be arranged; in contrast, the National University of Ireland seems to require the whole of the work to be done in one of its constituent or recognized colleges.

Outside Work.—Minor concessions are made by eight universities. Durham and Nottingham allow paid duties in the university for six hours a week. London allows six hours' teaching a week, and Liverpool three hours' work other than the research each week. Leeds and Manchester may allow a limited amount of outside work, and, with special approval, a Birmingham candidate may hold an appointment or do professional work. Glasgow requires candidates "to devote the major part of the day during term time to the object of their research."

Supervision of Studies.—The candidate has a supervisor—often a professor—who advises both the candidate and the university on all matters connected with the candidate's work. Supervision does not include formal teaching; at Oxford, for example, the supervisor is appointed "to direct and superintend the work of the student, but not to give him systematic instruction." The supervisor may require the student to attend courses of instruction, and if progress is unsatisfactory may advise the university to stop his Ph.D. course. Supervisors sometimes have to report on the candidate at regular intervals, usually once a year. A local supervisor may be appointed when the student is allowed to spend time away from the university. Supervisors are sometimes eligible for appointment as examiners of students whose work they have supervised. At Oxford seven boards allow this and seven do not; those allowing are mainly concerned with arts subjects but include that for physical sciences; the boards not allowing include those for all other science subjects and for medicine.

Part-time Research Students

Eleven universities allow the whole Ph.D. course to be done part-time, but as a rule only in certain subjects (Table II). The other nine universities do not seem to accept part-time students for the Ph.D. in any subject. At Manchester a part-time student is normally required to hold a mastership "by thesis or by thesis and examination," and at Leeds such a student is expected to hold a mastership by "thesis or dissertation." A part-time Ph.D. course lasts three years at Aberdeen, Belfast, Edinburgh, Leeds, Manchester, and St. Andrews; four years at Nottingham and Sheffield; and two to four years at London. These periods are one year more than those for full-time courses, with the following exceptions: at Aberdeen and St. Andrews the periods are the same as for full-time courses; at London, up to two years more; at Nottingham, two years more (twice the length of a full-time course). Part-time research students have to report to their supervisors regularly—at Edinburgh and St. Andrews at least twice a term, at Aberdeen at least once. A student who had done both his preliminary training and his Ph.D. course wholly by part-time work would normally be of five years' standing from his initial degree—a point of medical interest in view of the growing tendency to require M.B.s to be of five years' standing on taking the M.D.

TABLE II.—*The Ph.D. Wholly by Part-time Study*

Subjects	Allowed by
Unrestricted	Belfast, Edinburgh, London, Reading, St. Andrews
Divinity and law only	Aberdeen
Arts and law only	Sheffield
Other than arts, medicine, science, and engineering	Glasgow
Those not requiring laboratory work	Leeds*
Those not requiring substantial laboratory work	Manchester†, Nottingham

* Only to graduates of a university. † The restriction applies "normally."

Staff Candidates

The Ph.D. regulations of most universities mention staff candidates. In general, members of the full-time staff of a university are treated as part-time research students, the course lasting two to four years; Bristol requires three years' work, Edinburgh two or three. Four universities have special regulations for staff candidates.

Liverpool.—The Ph.D. is open to "a graduate member of the full-time academic staff who has been in the service of the university for not less than four years" on submission of a thesis or published papers; the candidate has two examiners (both external), and must undergo an oral examination if required.

London.—London accepts as internal students graduates of any university who are "full-time members of the staff engaged in teaching or research" in specified university colleges at home and abroad; such candidates may have a local supervisor or London and local supervisors acting jointly.

Sheffield.—"A candidate may be registered as a staff candidate if at the time of registration he is a full-time member of the academic, library, or administrative staff of the university but not the head of an academic department." Staff candidates do three years' research and submit a thesis; there are two examiners (both external, as at Liverpool), and an oral examination is required.

Wales.—Full-time members of the staff of a constituent college or the medical school follow an approved scheme of research under supervision, for three years if teachers, for two years if research workers.

Hospital Candidates

Birmingham allows Ph.D. work to be done in hospitals associated with the university; the ordinary Ph.D. regulations apply. Hospital work would also be feasible under the regulations of Edinburgh if the candidate was a graduate of Edinburgh or another approved university.

Sheffield.—A full-time member of the staff of the United Sheffield Hospitals may be a Ph.D. candidate if he (1) is on the university teaching staff, (2) is a member of a hospital department where a full-time member of a university department is an honorary consultant, and (3) is a graduate (not *ex officio*) of an approved university; three years' work supervised by the honorary consultant is required. The regulations apply to both medical and non-medical staff.

Special Candidates

At Sheffield a special candidate is a full-time research student, part-time research student, or staff candidate, who began his Ph.D. course in another of these three categories (transfer to or from the hospital category has not so far been applied for, but it is considered that this would be possible if the case arose). Wales allows the completion of a Ph.D. course by a full-time member of the staff who began it as a full-time research student. Bristol may allow two years' part-time work instead of the normal second year of full-time work, and in exceptional cases Birmingham may allow two or more years' part-time work instead of the normal second year. The Durham Faculty of Education allows one year's full-time work to be followed by three years' part-time work. Arrangements for candidates transferring from one category to another are made to suit the individual case.

The Thesis

At the end of his course the student—whatever his category—must submit an account of his research in the form of a thesis or published work, and the regulations sometimes specify in detail both the standard and the form of the thesis.

Standard Required.—At Birmingham the thesis must contain "original work of merit and worthy of publication in full or in part by a learned society." At Dublin the thesis "must be a worthy contribution to knowledge, and must give evidence of independent inquiry and of originality either in conclusions or in method." At Edinburgh "in the natural sciences the thesis is expected to give such new facts, with experimental or other evidence, as would form material for the publication of a paper in a scientific journal." At Liverpool the degree is awarded to candidates "whose theses show evidence of systematic study and of the ability to relate the results of their study to the

general body of knowledge in the subject, and who are adjudged to have made a definite contribution to learning." At London the thesis "must form a distinct contribution to the knowledge of the subject and afford evidence of originality, shown either by the discovery of new facts or by the exercise of independent critical power." At St. Andrews a Ph.D. thesis on a medical subject must be "of sufficient merit apart from any record of clinical observations it may contain." The Oxford Board of Studies for Psychology has ruled that theses should not exceed 100,000 words, and advises "that they should be considerably shorter" than this. Bristol, Liverpool, Reading, and Wales require the thesis to be submitted in a form suitable for publication, and Oxford requires the thesis to contain "an original contribution to knowledge, set forth in such a manner as to be fit for publication."

Published Work.—The work on which the claim to the degree is based may have been published, but the submission of reprints alone will not necessarily fulfil the requirements. A regulation for London external students reads: "Candidates should bear in mind that the requirements of a Ph.D. thesis may be, and often are, different from those of a paper published in most technical or scientific journals. Thus a reprint of such a paper, even if it contains information of a technical value to specialists in a certain field, is not by itself necessarily, or even generally, acceptable as a Ph.D. thesis. A clear and balanced presentation is one of the things demanded of a successful candidate for this degree." A Glasgow regulation states that "the thesis should take the form of a single memoir presenting a connected account of the candidate's research or work. Detached papers under various headings will not be regarded as a sufficient substitute unless they are accompanied by a separate statement, composed by the candidate, giving a full account of the methods, results, and conclusions of the research or work on which his candidature is based." At St. Andrews, "except under special circumstances reprints of published papers are not accepted in lieu of the formal thesis, which should take the form of a specially composed monograph."

Time-limit for Thesis.—Five universities fix a time-limit for submission of the thesis. At Cambridge, Dublin, and Oxford this is four years from the start of the course; candidates taking a two-year course thus have two more years, those taking a three-year course have only one more year. Edinburgh allows five years from start to finish. Nottingham allows one year more than the prescribed length of the course. In special circumstances the time-limit may be extended, except at Edinburgh, and Oxford may allow up to six years from the start of the course.

The Examination

If the thesis is adequate the candidate is normally examined on the thesis and related matters (Table III). The examination is usually oral, but most universities reserve the right to examine the candidate by other methods, which means that he may have to take written or practical examinations.

An unsuccessful candidate may be allowed to re-present the thesis in a revised form or to take the examination again; alternatively, he may be granted the appropriate master's degree or its equivalent, as at Cambridge, Liverpool, Nottingham, Oxford, and Reading.

TABLE III.—*Examination After Submission of Thesis*

University	Always Held	Normally Held	May be Held	Oral or Other	On Thesis and Other Matters
Aberdeen		+		+	?
Belfast			+	—*	—†
Birmingham			+	+	+
Bristol		+		?	?
Cambridge		+		+	+
Dublin			+	?	—†
Durham		+		+	+
Edinburgh			+	?	?
Glasgow			+	+	—†
Ireland			+	+	+
Leeds	+			+	+
Liverpool	+			—*	+
London	+			+	+
Manchester	+			+	+
Nottingham	+			+	+
Oxford	+			+	+
Reading		+		+	+
St. Andrews			+	+	—†
Sheffield	+			—*	+
Wales	+			+	?

* Oral only. † On thesis only.

Cost of a Ph.D. Course

The chief item is maintenance, an expense that can be estimated only by the individual university. Candidates not earning their living may be maintained by fellowships or similar awards. The university may pay the candidate for occasional teaching services or contribute towards the cost of his research. Various fees are payable by Ph.D. candidates, but the only substantial charges are those for tuition and examination. The term tuition as used here covers supervision and use of laboratory.

Tuition Fees.—The method of calculating the tuition fee varies; sometimes there is a single fee for the whole course, sometimes the fees are itemized, and the period covered may be a term, a quarter, a session, or a year. Table IV shows that the annual tuition fee in a laboratory subject is usually £20–£25. The fees at Belfast (£10 10s.) and Reading (£15) are exceptionally low, and so are those at Manchester (the fee of £20 is the maximum for a science subject, the minimum being £11; in technology the fee is £12 12s., and in other faculties—including medicine—it is £11). In contrast the fees at Cambridge (£60), Dublin (£28 7s.), and Leeds (£28) are exceptionally high. The Cambridge fee consists of a term fee of £6 and an "additional fee of not more than £10 10s. a quarter"; the figure of £60 thus represents the student's total annual liability, apart from possible charges for "special material or apparatus." Tuition fees are the same in all four Scottish universities.

TABLE IV.—*Main Fees for the Ph.D.*

University	Supervision and Use of Laboratory (per annum)	Examination and Graduation	University	Supervision and Use of Laboratory (per annum)	Examination and Graduation
	£ s.	£ s.		£ s.	£ s.
Aberdeen	22 1	16 15	Leeds	28 0	17 0
Belfast	10 10	12 12	Liverpool	23 10	17 0
Birmingham	25 0	18 2	London	—*	21 0
Bristol	21 0	14 13	Manchester	20 0	15 15
Cambridge	60 0	16 0	Nottingham	22 1	17 10
Dublin	28 7	18 8	Oxford	21 0	33 0
Durham	—*	15 0	Reading	15 0	12 12
Edinburgh	22 1	15 15	St. Andrews	22 1	15 15
Glasgow	22 1	15 15	Sheffield	25 0	16 15
Ireland	—*	25 0	Wales	—*	14 2

The fees stated are those for a non-graduate of the university taking a two-year full-time course.
* Fee probably fixed by institution providing tuition.

Examination and Graduation Fees.—Table IV shows that these normally total £15–£17. The fees at Belfast and Reading (both £12 12s.) are exceptionally low; those charged by the National University of Ireland (£25), London (£21), and Oxford (£33) are exceptionally high. The examination fee separately is usually £10–£16; the graduation fee separately is usually £5–£7.

Concessions.—Students already graduates of the university in which they are Ph.D. candidates are normally excused certain small fees. Three universities make substantial concessions to their own graduates: Dublin charges them only half the normal term fee; the National University of Ireland charges them £5 instead of £20 for examination (the graduation fee for all candidates is £5); London charges £10 10s. instead of £21 if the candidate holds the London degree of master in the same faculty. Students allowed to work away from a university pay only nominal fees to the university. In some universities—Belfast, Liverpool, and Sheffield, for example—staff candidates are excused tuition fees; Dublin excuses them only the laboratory fee. Staff

candidates pay the normal examination and graduation fees, less the normal concessions if already graduates of the university. The fee for re-examination is sometimes less than the fee for the first examination. In this matter the Scottish universities show differences contrasting remarkably with their uniform fees for tuition and examination. In all of them the examination fee is £15 15s.; re-examination costs £15 15s. at St. Andrews, £10 10s. at Aberdeen, and £5 5s. at Edinburgh and Glasgow.

Discussion

Non-graduates as Ph.D. Candidates.—To profit by a Ph.D. course a student must have received an education comparable to that of a university graduate; no concession in this matter is possible if the standard of the Ph.D. is to be maintained. The alternatives to a degree listed in Table I are not concessions but acknowledgments of the fact that suitable courses of higher education do not necessarily terminate with a degree, diploma, or certificate. A Ph.D. committee should be free to accept any competent person: only Cambridge and Reading give their authorities this freedom; the Reading rule quoted above has the advantage of brevity and deserves general adoption. This would not open the Ph.D. to all comers: a Ph.D. committee need not accept anyone—graduate or non-graduate—of whose competence it is not satisfied.

Ph.D.s who took a bachelor's degree without honours, or no lower degree at all, have had careers of scientific distinction; the exclusion of such students from Ph.D. courses would have been deplorable. A registrable medical qualification should be accepted as an alternative to a degree, as it is by the donors of fellowships for medical research; a medical man may have less specialized knowledge than an honours graduate in arts or science, but any deficiency is counter-balanced by his wider range of knowledge and greater maturity. There is no necessary relation between the ability to graduate with honours and capacity for research; shortened Ph.D. courses for honours graduates are therefore not desirable, and graduates without honours should be admitted to Ph.D. courses if they have the requisite aptitude for research.

The Thesis.—It is impracticable to write a satisfactory thesis on a medical or scientific subject in a form suitable for publication. Theses and papers are distinct literary forms, and one of them cannot be made to do the work of the other. A thesis, being addressed to examiners, should be a full account of the work done. Much of a good research consists in preliminary experiments, and examiners should be informed of these, for the student's quality will show clearly in his reaction to difficulties. A paper, unlike a thesis, is written for the scientific public, which is interested only in those parts of a research that lead to some conclusion; the reader who is himself an investigator knows only too well how much can be omitted from a paper, and that the phrase "preliminary experiments suggested that . . ." may summarize months of good work.

Regulations quoted above show the inadequacy of published papers as a substitute for a thesis. Acceptance of reprints in lieu of a thesis is not really a kindness to the candidate, because it denies the examiners a full account of the work; in the interests of both parties a specially written thesis should invariably be required. The St. Andrews rule that a medical thesis must be of sufficient merit apart from clinical observations could be applied with equal propriety to observations of any kind; it is not the nature of the observations but the candidate's analysis of them that determines the merit of a thesis.

Hospital Candidates.—The Sheffield regulations show that a Ph.D. course need not invariably be pursued on university premises. Many universities are within easy reach of hospitals, research institutes, and pharmaceutical and other laboratories that could greatly extend the opportunities of their research students; such institutions and laboratories could sometimes provide better facilities than the university, or the only facilities for work in certain subjects. The main obstacles to the recognition of study in outside institutions seem to be a fear that the Ph.D. might become an external degree, and doubts about the possibility of ensuring satisfactory supervision. It should be possible to meet these objections by requiring all students to attend regularly at a university department and by appointing both internal and external supervisors; the heads of outside laboratories are often workers of distinction and as capable of supervising research as the full-time university staff.

The Ph.D. standard can certainly be attained by part-time work in medicine—the best M.D. theses prove this—and there does not seem to be any convincing reason for restrictions on the subjects that may be studied in this way.

Fees.—A student normally wants to work in a particular department, and is unlikely to be influenced by differences in scales of fees. Identical fees for the Ph.D. might be difficult to achieve, for each university has its own fee system; wide discrepancies are nevertheless undesirable, and the need of some adjustments is clear from the figures given above. These suggest that a reasonable fee for each year of a two-year full-time course in a laboratory subject would be £25, and in a non-laboratory subject £15; the fee for examination might be £10 and the graduation fee £5. The fees for examination and graduation should be separate (as they usually are), otherwise an unsuccessful candidate would in effect pay for graduation each time he was examined. The Cambridge regulations show that the examination fee (£10) never covers the cost of the examination; a student in any university would have no ground of complaint if the fee for re-examination for the Ph.D. were the same as that for the first examination.

Summary

The requirements of the British universities for the Ph.D. degree are reviewed.

The Ph.D. should be open to all competent persons, whether graduates or not, including holders of a registrable medical qualification.

In the interests of both candidates and examiners, a specially written thesis should invariably be required, even when the work forming the claim to the degree has been published.

It is impracticable to write a satisfactory thesis on a medical or scientific subject in a form suitable for publication.

A Ph.D. candidate should be allowed to work in the place providing the best facilities for his research, whether this is on the university premises or not.

Eleven of the twenty universities allow the whole Ph.D. course to be done part-time, though sometimes only in certain subjects. The requisite standard is attainable in medical subjects by part-time work.

The fees for the Ph.D. vary widely and some adjustments are needed.

I am indebted to many university officials for information and to Dr. H. A. Sandiford and Professor S. L. Baker for reading the manuscript.

Some of the processes in the manufacture of instruments for eye surgery are described in the current issue of *Steel News*. The best of these are hand-made by experienced craftsmen. Knives are forged from the finest carbon steel and the making of the blades requires great judgment. After fitting to the handle, the blades are dipped in a tiny cauldron of molten lead to bring them to the correct temperature and then quenched in water. Then follow a modified tempering treatment, grinding on wheels made of lead and leather-covered wood, and finally setting on a stone. The stone illustrated in *Steel News* is over a century old. The cutting edge is finally tested on a thin piece of kid leather stretched tightly over a ring.

MANCHESTER HEALTH CENTRE

EDUCATIONAL FUNCTION

BY

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Manchester University, with the help of the Nuffield Trust, the Rockefeller Foundation, and the Manchester City Council, with the co-operation of four general practitioners, is proposing to establish a health centre at Darbishire House, in Upper Brook Street, within a stone's throw of the Manchester Royal Infirmary. The health centre conforms broadly to the specifications recently laid down in the Messer Report of the Central Health Services Council and provides facilities for teaching. It will aim at uniting the preventive health services with the work of the family doctor; it will encourage group practice; it will seek to supply the needs of good general practice in terms of scientific aids; it will, it is hoped, develop into a common meeting-ground of those interested in general practice, in preventive and social medicine, and in the welfare services.

Four General Practitioners

The centre will provide accommodation for four general practitioners and for the maternity and child-welfare and school health clinics of the city which serve the area. Each general practitioner will in due course limit his practice to 2,750 patients, so that the health centre will be serving an area containing in the first place about 11,000 patients, together with a rather larger community focused on the preventive clinics. The four practitioners will conduct the preventive health clinics, and each, as a further measure of integration, will hold a post in hospital as a clinical assistant. There will in the first instance be no group practice; this will depend on practical developments.

The precise lay-out of the health centre and its equipment are still the subject of study (the centre is not expected to open before next spring); it will include a side room for routine pathological tests, and (contrary to the Messer proposals) *x*-ray facilities.

The health centre will be governed by a board of management consisting of four representatives from the university, three from the city council, two from the executive council, and one from the local medical committee, together with the four doctors engaged at the centre. The day-to-day business is to be the concern of a management committee (appointed by the board), which will consist of the four doctors of the centre and three university representatives.

Training of Students

"The full objective will probably take five years to complete and will pass through several stages of development," says a recent report of the Nuffield Trust. The first two years will be a period of settling in, during which teaching will not be undertaken. At the end of this time medical students will attend as an integral part of clinical training. At this juncture it is not possible to predict how much time each student will be expected to give to this new work, nor to forecast the precise part which he will play in the work of the centre. Much will depend on rearrangement of work in other spheres, since the pint pot is already full here, as elsewhere. It is often said that few students before qualification as doctors have any first-hand experience of the commoner and less serious illnesses, and that they have little knowledge or understanding of what the normal home is like, or of the social, economic, emotional, and other factors which play such a large part in the genesis of disease and its continuance. The health centre will present an admirable opportunity to remedy these deficiencies and at the same time to show how the work of the prevention of disease and the promotion of health can be integrated with general practice. The health centre, as the focus of services for an area, will also develop an understanding of the advantages of the team approach to many of the problems of social medicine.

While this educational function is the primary one to influence the University to undertake this new responsibility it is clear that Manchester will perform an experiment of considerable national interest and importance. Although health centres have been widely discussed since the first recommendation of the 1920 Dawson Report, we are still very ignorant of their precise function. If they are to perform the great purpose envisaged for them as the linchpin of the new Health Service, if they are to provide the conditions in which general practice in Britain can be reborn, if they are to find for us the answer to that ever-pressing problem of how to tackle the social, emotional, environmental, and welfare needs of people in harmony with their purely medical requirements; then it is certain that much research and experiment must be undertaken before health centres can become general. The teaching health centre at Manchester may help to fill in a few of the present large gaps in our knowledge.

EDUCATION IN GENERAL PRACTICE

AN EXPERIMENT AT ST. MARY'S HOSPITAL

BY

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To be a good general practitioner a young doctor must himself experience the conditions of general practice, guided at first by an older man, but free to improve on his predecessor.

How then can he be prepared while still in hospital? Only to this extent: his *first vivid impression* of general practice must be of the highest quality, so that all his life he has a criterion by which he must subconsciously judge all future practice, and especially his own. He must have before his eyes a challenge to make him revolt against poor work; wherever he settles he must feel that he has an opportunity to improve the standard he finds. A young man with any guts will be dissatisfied for ever afterwards unless he can attain at least to his memory of his first impression rather than acquiesce in what has hitherto passed as adequate general practice.

How St. Mary's Evolved Its Own Particular Solution

During the early 'thirties members of the teaching staff of the hospital found themselves involved in arguments with one or two recently qualified students who put forward the unorthodox point of view that there was a lot in general practice which was not, and could not, be taught in hospital. The honorary who was called in consultation, after his friendly pat on the shoulder, and "Well how are you settling down?" found himself put on the spot. All the usual questions were pressed. Why were we not told the great difference between the conditions under which medicine was practised in hospital, in the home, and in the consulting-room? Had our teachers themselves any personal experience of the difficulties of applying good medicine in bad surroundings, and without all the automatic ancillary help?

Why must we flounder in an unknown world of common ailments, bottles of medicine, chronic patients, certificates, financial crises, and so on, just at the time when we most needed all our wits to get to know our patients and their homes and habits ?

The arguments were persistent, and bore fruit. If, as was suggested, there was something that a general practitioner could teach the students, let him try, always assuming that the students were willing to add yet one more subject to their overcrowded curriculum. So in 1935 the first course of lectures was advertised and personally introduced by Lord Moran, who was then dean of the school. He prophesied gloomily that the lecturer must not expect an attendance of much over a bare dozen, and handsomely ate his words when 80 turned up. There were six lectures : on buying a practice, on common ailments, on equipment, on paper work, on preventive medicine, and on ethics. But these titles were very elastic, and the lecturer tended to introduce a good deal of personal experience of difficulties encountered, of advice by his more experienced colleagues, of unsolved problems, and particularly of advice on how to spend the remaining time in hospital to the greatest advantage. The audience was so appreciative that the course was made an annual one. During the war it was given in alternate years. After the war the lecturer felt that more was required, so it was arranged that the class should visit his practice one afternoon by bus. This is a glorified Sunday-school treat, ending with tea and buns, but the students meet the neighbouring G.P.s, their wives, dispensers, secretaries, the local district nurses, health visitor, and medical officer of health ; they poke their noses into every corner of the consulting-rooms and dispensary, and their questions are endless.

A Week with a G.P.

Dr. Denis Brinton, who was then dean, felt that this was not giving a wide enough picture of the young G.P.'s future work, so he arranged to give each St. Mary's student, during his last three months, the chance of spending a week with one of a group of selected G.P.s. Twelve doctors are now taking three or four students each, for one week at a time, spacing them over the year. During his week the student lives on the spot in "digs" or a local pub, if not in the doctor's house. He tags around with the G.P., sits in during the surgery, goes on the rounds, and really gets his nose well rubbed on the grindstone. On the whole the patients seem to like it. It is a new face and a new interest. The teacher makes a point of showing the students as many chronic cases as he can. He finds that he himself derives considerable benefit from these students to counterbalance the extra work involved, for it freshens up his ideas and he learns quite a bit of postgraduate "recent advances." It also smartly checks any slovenly habits into which he may be sliding.

The dean and secretary usually arrange these students' visits during the last months before examination or just afterwards. They take into account the student's preference for what kind of practice he is most likely to settle down in, and there is a definite place allowed for this in the curriculum. The student is also given a small allowance to cover his expenses.

It is planned that at stated intervals the dean of the medical school, the general practitioners who teach, and the students who have attended their practices shall meet together to discuss any way of making the scheme more practical and useful. One such meeting has already been held.

Other medical schools are at work along the same lines. As time goes on we shall pool the best ideas, so that every doctor will have a wider outlook on medicine. If he plans to be a family doctor his training in hospital will stand him in better stead ; if he favours specialism or research, then he will have closer sympathy with the G.P.s' problems ; and if he prefers teaching he will have a better idea of what kind of finished product it is his aim to produce.

TRAINING OF MEDICAL STUDENTS IN GENERAL PRACTICE IN SHEFFIELD

BY

W. HOBSON, M.D., B.Sc., D.P.H.

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A scheme for the attachment of medical students to general practitioners in Sheffield has now been in operation for two years. This is part of a general plan to introduce students to branches of medicine practised outside the teaching hospital and to enable the student to see for himself the beginnings of ill-health as seen in the family. He is able to see the commoner types of illness and disability not generally seen in hospital and to learn of the many agencies which are available for the prevention and management of illness within the community. In the words of one general practitioner, "Whatever the course of the student's subsequent career, his training is incomplete if it does not include an opportunity to observe, at first hand and under guidance, the patient as a person in relation to home, family, and occupation, and the various stresses and desires which beset him."

The Scheme

The recruitment of general practitioners to help in the scheme was carried out with the help of the local branch of the British Medical Association, and all arrangements were made in consultation with them. In the first place volunteers were asked for to undertake this work, for which there was no financial remuneration. We have been fortunate in getting 23 doctors to take part in the scheme within a few miles radius of the university. In addition, we have always had a few reserves on call if necessary. Most of the doctors were known personally to us before the inauguration of the scheme, and many of them are old Sheffield graduates.

It was decided that the months of April and May would be the best time, not only from the point of view of the majority of general practitioners but also from the student's point of view, as the appointment could then be fitted to the last three months of the final year, during which time every effort is made to keep the student free from lectures and appointments. Each student is attached to one practitioner at a time, for a period of two weeks ; the scheme operates for a total of eight weeks during the months of April and May, excluding the Easter week-end. A practitioner may co-operate by taking two, three, or four different students for two weeks each, or by taking one student for a single period of two weeks.

The student reports from 9 a.m. for the whole of the morning from Monday to Saturday in each week, the idea being that he should attend the morning surgery and accompany the doctor on his visits. The doctors are asked not to make any special arrangements because of the presence of the student, and the scheme does not interfere in any way with the routine of the practice. The student can, of course, assist the doctor in any way he thinks fit, and the doctor is quite free to ask the student not to be present during the examination of patients who might resent the attendance of a second party. In practice, however, there have been no difficulties and the scheme has been of mutual benefit to both doctor and student. In some cases the student has been invited to attend evening surgery, or, in the case of a busy practice, to accompany the doctor in the afternoon.

The scheme forms a useful link between the university and general practice. It is not without its compensation from

the doctors' point of view. To quote one doctor : "I find it a stimulating experience to have someone to teach, and I am sure that the presence of a potential critic must have a salutary effect upon the standard of one's work. The mere fact of discussion will operate to eliminate acts of omission which tend to creep in when handling frequent attenders at the surgery." The scheme is purely voluntary so far as the students are concerned. In 1951 55% of the final-year students took part, and in 1952 77%. Most of the students who did not take part could not do so because of other commitments.

Introductory Lectures

Before the scheme begins the students have a lecture telling them of the purpose of the scheme and giving them details of their attachment ; at the same time any questions relating to the appointment can be answered. In addition, they receive three lectures on the ethics and conduct of general practice by a general practitioner. All the doctors participating in the scheme are invited to a meeting to discuss the details of its operation.

An opportunity is afforded to find out what the students think of the appointment at the luncheon given by the local branch of the British Medical Association to those who have recently qualified.

The course has been welcomed most enthusiastically by both students and doctors ; the only criticisms have been the following : the course is probably too near the final examinations, when most of the students are preoccupied with reading, and many of the doctors consider that a fortnight is too short. It would also be of benefit if each student could see something of the different types of practice—for example, in poor, well-to-do, and rural areas—although this would be difficult to arrange. I think that the inclusion of general-practitioner training in the preregistration curriculum should be seriously considered.

Important Differences

The following points made by doctors and students indicate some of the important features of general practice as distinct from hospital practice.

1. The facility with which the practitioner must switch from one "branch" of medical practice to another, after the increasing compartmentalism of hospital work.

2. The necessity to rely upon one's senses in arriving at a diagnosis instead of upon the wholesale routine investigations by ancillary departments which constitute the hospital diagnostic method.

3. The vast amount of minor yet real disease which must all be labelled and treated, and which is largely outside the ken of the consultant.

4. The minor infectious ailments, which may be the subject of examination questions and which are rarely seen in hospital. "Koplik's spots were a real winner in this respect."

5. The experience required in predicting the natural history of a malady, particularly with reference to the spacing of one's visits.

6. The necessity to treat trivialities with dispatch yet without hurting the patient's feelings.

7. The importance, to all parties, of honest certification, and its difficulty when one's living depends upon good will.

8. The value of attending to the organization of the practice, so that time may be available for the "long case" and leisure for the practitioner.

9. The fact that the G.P. does indeed treat organic disease, despite opinions to the contrary held and disseminated by inexperienced hospital workers. "I was not guiltless in this respect myself during my resident days!"

The undoubted success of this scheme has been due to the general practitioners who have taken on this extra work, and I should personally like to take this opportunity of thanking them on behalf of the university.

THE PUBLIC HEALTH SERVICE

BY

G. L. C. ELLISTON, M.A.
Executive Secretary, Society of Medical Officers of Health

Despite the prophets who have foretold the winding-up of the public health service or the transfer of its remnants to other branches of the National Health Service, the number of whole-time posts in the medical services of local authorities appears to stay constant at about 2,000. The Chief Medical Officers of both the Ministry of Health and the Department of Health for Scotland have expressed the need for adequate recruitment of high-quality medical graduates to this branch. There has undoubtedly been a lack of suitable candidates for public health posts during recent years, but this was largely due to the prolonged delay in bringing remuneration of medical officers of health and their colleagues into some relation with those of specialists and general practitioners. Since the Industrial Court made its awards, after the failure to agree of the Management and Staff sides of Whitley Medical Council Committee C, the scales awarded for public health medical officers have been almost universally implemented. They are identical for England and Scotland and Wales, and similar salaries are paid in Northern Ireland. Although these are a considerable improvement on previous rates, there is still some doubt whether they represent a reasonable comparison with the remuneration of other classes of doctors, particularly in respect of departmental or assistant medical officers, who form the largest section of the public health service, and that from which promotion to higher ranks is taken. However, the assistant's scale of £850, rising by £50 annually to £1,150, is often improved upon by local authorities who wish to obtain medical officers with some additional experience. Such posts are usually designated as "senior assistant M.O.H." The larger local health authorities usually appoint senior medical officers in charge of departments (maternity and child welfare, school medical service, mental health, port health) under the medical officer of health and school medical officer : the senior M.O. scale is laid down as £1,250, rising by £100 annually to £1,650, but higher scales are paid by some of the largest authorities.

One of the largest sections of the public health service is that of doctors holding mixed appointments as M.O.H. of one or more county districts and also as area or divisional medical officers for county councils with responsibilities for local day-to-day administration of personal health services, or as assistant county medical officers carrying out duties at maternity and child welfare centres or at school clinics. The Industrial Court laid down rules for arriving at appropriate scales for such posts. Broadly speaking, the commencing figures for these "mixed" posts range between £1,050 and £1,500 and the maxima between £1,300 and £1,900, according to circumstances and responsibilities.

There are a limited number of whole-time divisional medical officer posts (mainly in London and adjoining counties) for which the salaries have commencing figures between £1,300 and £1,500 and maxima between £1.700 and £1,900 (or higher where the population of the division is over 400,000).

Lastly, whole-time medical officers of health were awarded a series of scales and ranges, varying with the populations of their authorities and allowing for an additional £100 where the M.O.H. serves more than one authority. The minimum commencing figure for an M.O.H. can lie between £1,450 and £2,300 and the maximum between £1,650 and £2,700 or

higher where the population concerned exceeds 600,000. Deputy M.O.H.s and S.M.O.s are paid scales commencing at two-thirds of the figures appropriate for their chiefs, and receive the same annual increments.

So much for the financial prospects of the public health service, which also include contributory superannuation schemes under the National Health Service (Superannuation) Regulations or the Local Government Superannuation Act, 1937.

Those who aim at ultimate appointments as M.O.H. must take the Diploma in Public Health or a degree in public health or hygiene statutorily recognized. For the clinical posts in public health, local authorities often require the holding of such special qualifications as the D.C.H., D.R.C.O.G., M.M.S.A., etc.

The views about the future of public health work vary between the ultra-pessimistic—which considers that the day is fast approaching when the well-established personal services will be handed over to general practitioners or hospitals, or both, the epidemiological work to the Public Health Laboratory Service, and the environmental to the engineers and sanitary inspectors—and the ultra-optimistic, which foresees the M.O.H. as a local C. in C. or administrative chief executive for all health and medical services, with expert chief assistants in all branches and a corps of salaried consultants and general practitioners.

The balanced view is perhaps that, as medicine and the National Health Service become more genuinely interested in prevention, the M.O.H. will find his rightful place as the epidemiologist, co-ordinator, and social physician in an integrated health service. There should also be room for the experienced medical officers with special knowledge of maternal and child health, school health, and the other spheres in which the progressive local authorities have done all the pioneering. No doubt general practitioners will take an increasing part in the preventive and educational clinic services, as they already do in considerable numbers; but this last depends upon changes in the outlook of medical training and in the structure of general practice. The reduction in the size of N.H.S. lists recommended as a result of the Danckwerts award is the first step in this direction.

Nova et Vetera

AIRY SYLLABUB

A Doctor's London. By Harvey Graham. (Pp. 107; 30 illustrations. 13s. 6d.) London: Allan Wingate. 1952.

This volume in the series of the Londoner's Library has a nostalgic charm for one who still remembers the delight of living in the Doctor's London. It is good to be reminded of the marriage in 1713 between Lady Henrietta Cavendish Holles and Edward Harley, Earl of Oxford and Mortimer, Baron Harley of Wigmore Cottage, and owner of the Wimpole Estate, a marriage which has provided so many consultants with professional addresses. The history of medicine and the history of London are eternally interesting and the author has combined the two in a delightful book. He has managed to compress an enormous amount of information into its 107 pages and flavoured it subtly with his own humour, so that what might have been a stodgy pudding of indigestible facts becomes an airy syllabub. Harvey Graham has included innumerable anecdotes of the famous and the not-so-famous, so that one can hardly open the book anywhere without coming on some fascinating or fantastic tale, and he ranges widely over the centuries, making the story of medical practice lively and continuous. The illustrations are well chosen and apt, there is an efficient index, and the production is pleasant. I cannot agree with the publishers' suggestion on the jacket that a copy should be in every waiting-room. Recalling a friend who thoughtfully furnished his waiting-room with a well-planned library of Everyman books, and shortly afterwards found his bookshelves bare, I do not think the copy would be there very long.

L. J. WITTS.

SELECTION OF STUDENTS

Nearly all the medical schools which have afforded the information appearing elsewhere in this Educational Number report that the applications for admission, though in some instances showing a tendency to diminish as compared with recent years, are still largely in excess of the available vacancies. At one London school, for example, not even one in seven can be accepted. This does not, of course, mean so widespread a disappointment as the mere figures would suggest, because many would-be students apply to more than one school. But it draws attention to the basis on which students are selected. In some cases local priorities to a certain extent govern the selection. But when it is left to an assessment of the applicant's own suitability several methods suggest themselves.

A little while ago the World Medical Association issued an interesting report on the subject, the result of a questionary sent to the various national medical associations comprising its membership. These associations in Belgium, the Netherlands, France, and the Irish Republic reported that no specific selection is employed, except in certain schools in Belgium and in one Irish school where written examinations are used. Interviews are a method employed in Great Britain, the United States, Canada, Czechoslovakia, India, and China. The United States, Canada, and India also use intelligence or aptitude tests, and such tests have been used experimentally in Great Britain. The most frequent methods of selection, reported by 15 national medical associations, are the use of written, oral, or both written and oral examinations for the screening of applicants, and a review of class records of previous school work. Only in Canada, apparently, are all four methods—interviews, aptitude tests, examinations, and class records—employed, though in Great Britain and the United States and in some other countries it is customary to employ three of these four methods.

The age of entry into medical schools varies the world over, from 16 in India and Spain to 22 in the United States. The average for all countries is about 19. In Norway and Sweden and in one or two other countries it is reported that the medical profession does not regard as satisfactory the present standards and arrangements for the selection and admission of students. On the other hand, the larger number of national medical associations questioned on this point reported that they were satisfied, although some of them suggested general lines of improvement and criticism. Some of them feel that the methods of selection could be improved by a wider use of selective and comprehensive examinations. A hint of the difficulties of deans is given in a communication from one London school which states that the raising of the standard of requirements for London University matriculation on the general certificate of education has the result that it is gained only at the end of the applicant's school career, and thus selection is made more difficult.

THE ENROLMENT IN MEDICINE

The total number of names in the current *Medical Register* is 82,256, which is 7,656 higher than the average for the last 10 years. Of these registrations, 39,911 were in England and Wales; 21,470 in Scotland; and 11,319 in Ireland. The registrations on the Commonwealth List numbered 7,513, and on the Foreign List 2,043. The following Table gives the position of the *Register* at the end of each of the last 10 years:

Year	Added by Registration	Added by Restoration	Death or Removal	Total
1942	3,556	7	1,127	69,428
1943	3,532	13	1,091	71,882
1944	2,971	11	1,218	73,646
1945	2,666	11	1,190	75,133
1946	2,237	14	1,092	76,292
1947	2,787	10	1,160	77,929
1948	3,968	16	4,467	76,292
1949	3,109	19	1,280	78,140
1950	3,160	45	1,123	80,222
1951	3,075	29	1,070	82,256

The unusual figures for 1948 were due to removals from the temporary foreign list following the passage of the Medical Practitioners and Pharmacists Act of the previous year and the transference of many of the names to the permanent list. During the last 20 years the total number on the general *Register* has increased by 25,500.

The Student Entry

The number of medical students admitted to the schools of Great Britain and Ireland during the academic year 1951–2 was approximately 2,565. A majority of the returns received showed a reduction of entrants compared with the previous academic year. The student admissions during the previous eight years were:

1943–4	..	2,426	1947–8	..	2,797
1944–5	..	2,612	1948–9	..	2,653
1945–6	..	2,610	1949–50	..	2,734
1946–7	..	2,533	1950–1	..	2,725

The annual entry during the early years of this century, up to the time of the first world war, was about 1,400. The training of medical students is shared between the teaching hospitals and the universities. In London the 12 undergraduate teaching hospitals and in England and Wales, apart from London, the 10 teaching-hospital centres in association with the universities have been designated teaching centres. In Scotland hospitals are not designated as teaching hospitals; all of them come under the jurisdiction of the five regional hospital boards, but provision is made for inclusion on the boards of management of nominees of the university on which the region is centred. In Northern Ireland the duty is laid upon the hospitals authority—a body corporate—to provide the Queen's University of Belfast with adequate facilities for medical teaching.

January 1, 1953, has now been appointed as the day after which a newly qualified person will not be eligible for full registration unless and until he has, after passing a qualifying examination, served as a house-officer in approved hospitals or institutions for 12 months.

Examination Results

In 1951 the results of the final or qualifying examinations in all the examining bodies combined were as follows:

	Passes	Rejections
Medicine	3,186 ..	1,538
Surgery	3,178 ..	1,724
Midwifery	3,214 ..	1,464

The percentage of passes in the universities was higher in all three subjects than in the Conjoint Boards. In medicine the highest percentage of passes in British universities was at Leeds (80), in surgery at St. Andrews (89), and in midwifery also at St. Andrews (86). The lowest percentage of passes in medicine was at Durham (59), in surgery at Cambridge (54), and in midwifery again at Cambridge (54). In the English Conjoint Board examinations the percentage of passes in medicine was 54, in surgery 52, and in midwifery 57. The respective percentages in the Scottish Conjoint Board were 57, 58, and 57, and in the Irish Conjoint Board, 58, 52, and 71. The largest number of students, some 1,200, took their final examinations under the English Conjoint Board, and the next largest number, over 800, in the University of London. In the examinations in anatomy in 1951 there were 2,523 passes and 1,115 rejections, and in physiology 2,531 passes and 1,106 rejections.

LONDON UNDERGRADUATE SCHOOLS

There are 12 undergraduate medical schools of the University of London. Each of them is associated with a principal and with one or more other designated teaching hospitals.

From October, 1953, revised regulations for the preclinical courses of the M.B., B.S. degrees will be introduced in the medical schools of Guy's, Middlesex, Royal Free, St. Bartholomew's, St. Mary's, St. Thomas's, and University College Hospitals. To gain admission to the medical courses of these schools a candidate will be required to satisfy the university entrance requirements and to satisfy the additional requirements of the Faculty of Medicine by including chemistry and physics at least at the Ordinary Level in the General Certificate of Education. One or two of the schools may also introduce additional academic requirements, details of which may be obtained from the particular school. There will be no exemption from Part I of the preclinical examination on the ground that a candidate has passed in the relevant subjects at the Advanced Level in his General Certificate of Education.

In the remaining schools, owing to shortage of laboratory accommodation, the old regulations for first and second medical examinations will remain in operation, and exemption from the first medical examination will be granted to candidates who pass in chemistry, physics, and biology at the Advanced Level in the General Certificate of Education examination of the university. In the case of other universities' General Certificate of Education, botany and zoology will be required at the Advanced Level instead of biology. These remaining schools are: King's College (for students proceeding to King's College Hospital Medical School, St. George's Hospital Medical School, and Westminster Medical School); Queen Mary College (first medical examination only); London Hospital Medical College (from second medical examination only); Charing Cross Hospital Medical School (from second medical examination only).

At *Guy's Hospital Medical School* there are 80 vacancies in the preclinical period, of which roughly two-thirds are for the first year, the remaining third—the first M.B. already passed—entering the second year. In addition 25 places are reserved for Oxford and Cambridge students for the clinical period of study. The new regulations of the University of London for the preclinical curriculum will be adopted as from October, 1953, and students will then be admitted only for the full course or for the clinical course in the case of students from Oxford and Cambridge. All students take a three-months preliminary course before entering the wards. There is a full range of house appointments for which students may apply when they qualify, and every encouragement is given to men of promise to obtain the higher degrees and diplomas. House officers—also students during selected weeks of their course—live in the college, and there are two hostels where a limited number of senior students can live near the hospital. It is a condition of entry to the medical school that students should join the clubs' union, which covers all athletic and intellectual activities and includes membership of the students' club.

As a result of the establishment of a readership in physics at *St. Mary's Hospital Medical School*, all the premedical and preclinical departments now have an appointed teacher of the University of London at their head. The physics laboratory has been altered and equipped with new benches, which will allow for an increased number of students in the first year. New research laboratories, an urgent need for many years, have been completed during the session for the surgical and paediatric units. Owing to the difficulty of obtaining a building licence the scheme for the alteration of houses purchased some time ago to provide residential accommodation for about 175 students has again had to be delayed. It is hoped that at least part of the alterations will be carried out in time to accommodate the students entering the medical school in October, 1953.

At *Middlesex Hospital Medical School* the new regulations relating to the preclinical examination of the University of London are being adopted as from October, 1953, and the necessary steps are being taken to accommodate the additional numbers of students in the first-year departments. The total admitted to the school will remain unaltered; in other words, no one will be accepted to begin the course at the beginning of the second M.B. course. Students from the Universities of Oxford and Cambridge will, of course, still be welcomed for the clinical part of their course. Such students are admitted twice in the year, when the introductory courses are held. The numbers of students applying for admission both to the preclinical and clinical courses remain very high, and students are advised to make application about 18 months to two years in advance of the date at which entry is required.

Middlesex Hospital has put forward the posts which it thinks should be approved as provisional registration appointments; these are, broadly speaking, those of house-physician and house-surgeon, and certain house-officer posts to special departments which can be classed as mainly medicine or surgery. Students who have passed the second M.B. examination can devote a year to studying physiology only for the B.Sc. (Special) Physiology examination, four students being selected annually.

Student Selection

The selection of students remains one of the largest problems of the *London Hospital Medical College*. The raising of the standard of requirements for London University "matriculation" on the general certificate of education has the result that it is gained only at the end of the applicant's school career, and thus selection is made more difficult. It is also resulting in the majority of medical students spending their last two years at school studying for two or more of the premedical sciences in order to achieve advanced level passes in them, with consequent impairment of their general education. The London will continue to accept as pre-clinical students boys and girls who have obtained exemption from the first M.B. on the general certificate of education, and their preclinical subjects will consist only of anatomy, physiology, and pharmacology. At the same time, as in the past, Queen Mary College will continue to teach the pre-medical subjects to students selected for later admission to the London Hospital, and these will take the London first M.B. internally. (These students must gain "matriculation" but not complete first M.B. before going to Queen Mary College.)

There is a greatly increasing integration between anatomy and physiology and between pharmacology and physiology, and this is already showing good results. The introductory course to the clinical curriculum consists of two main periods. The first is devoted to the teaching to small groups of the method of taking histories and making clinical examinations; the second to systematic and closely co-ordinated clinical and pathological demonstrations devised to illustrate disorders of function and structure. In the second period of the course three mornings a week are given to the training of students in groups of four or eight in various general hospital departments, thus increasing the amount of practical work at this stage and giving a clearer introduction to the hospital as a whole, while at the same time the student is laying a basis of clinical medicine.

Careful attention has been paid in recent years to what is known as social medicine, also to the history of medicine, together with the organization of modern medicine and modern hospital organization on which medical education is to some extent dependent. The aim is to make the student feel that he is part of the profession.

The clinical curriculum at the London has been reorganized so that in future it will consist of the introductory course, a year of in-patient clerking and dressing, a three-months pathology course, and then a year in special departments, following which there will be a period of up to five months in which the student will attend general out-patient departments and also have a chance to reflect on his studies before going up to his finals.

The number of beds at the London Hospital has now risen to 898, of which 198 are at the annexe at Brentwood. The turnover continues to be rapid and the annexes in Surrey and at Felixstowe continue to play an important part in maintaining the rapid flow. The special departments of the hospital continue to attract great numbers of patients from all over the country, while the East End of London, in which the hospital is situated, provides local material of rich clinical value. Now that the training of ex-Service men is virtually over, an endeavour is being made to return to the pre-war annual intake, which will mean taking in about 70 preclinical students yearly. The Dean comments on the remarkable increase in the participation by the students in all forms of sport and in musical and artistic activities.

Attendance of Students at G.P. Surgeries

One interesting innovation at *Westminster Hospital Medical School* is an arrangement whereby students voluntarily attend the surgeries of certain of the general practitioners in the neighbourhood. This experiment has proved popular and is obviously capable of extension. It should do something to counter the common criticism that teaching hospitals do not cater enough for the intending general practitioner. Additional facilities for midwifery training at the Westminster have been secured through the co-operation of the St. Helier Hospital Management Committee and the authorities at the Nelson Hospital, where students carry out a period of residence in rotation.

The number of applicants for admission to the Westminster continues to be far in excess of the vacancies available. The number of clinical students in attendance at the present time is 184 men and 22 women. The preclinical students at King's College preparing for clinical studies at Westminster number 54 men and 8 women. Approximately 25 students from other universities, notably Cambridge, are admitted at the clinical stage each year. Owing to the keen competition for vacancies, students from Cambridge and other universities are accepted as a general rule only if they have passed their preclinical examinations at the first attempt. Examination successes have been well maintained, owing no doubt to the more rigorous selection of preclinical applicants which has been enforced during the last three or four years.

A site for the new preclinical school has now been acquired in close proximity to the hospital. The proposal has been approved in principle and actual building operations await only the provision of finance and the release of materials and labour.

Competition for house appointments at the hospital has been particularly keen, and it has not been possible to find posts for all the applicants, some of them having to be accommodated in the provinces. The requirements of the Medical Act in the matter of compulsory one-year internships, which will come into force next year, are exercising the attention of the school authorities.

The past academic year at *St. Thomas's Hospital Medical School* has been one of stabilization, and from it has emerged the probable "pattern of life" at St. Thomas's for the next few years. No further major expansion is possible without extensive rebuilding, and this appears to be very remote. The ruins from the air-raids of over ten years ago still gape reproachfully at those who come to gaze at Westminster and Big Ben.

In 1953 the new curriculum will bring with it changes in conditions for entrance scholarships, which will open the field for arts as well as science candidates. It was hoped that the new curriculum itself would help to improve the general standard of education of medical students, but the insistence on passing at ordinary level in the general certificate of education both physics and chemistry for matriculation has robbed the scheme of much of its value. Any prospective student, while still at school, will find it difficult to take at advanced level any non-scientific subject in addition to these matriculation requirements.

Applications greatly exceed the 80 available clinical vacancies, and this number of vacancies could not be increased without more teaching beds. The difficulty postgraduates find in obtaining suitable appointments suggests that the market is near saturation, and that any increase in the output of qualified men is undesirable. The aim should be quality rather than quantity.

Undergraduate teaching is running smoothly and St. Thomas's is better equipped than ever before. Much research work is in progress, with an increasing link between preclinical and clinical departments, all of which tends to emphasize the essential continuity of the whole course. Accommodation is just adequate, but the smallest need for expansion produces a major problem. The advent of the new Medical Act will make little or no difference, as it has

always been customary for most postgraduates to do at least a year's house appointments. The competition for house appointments could not reach a keener standard than has existed during the past four years.

The Student's Varied Experience

There seems little doubt that the medical student has considerably more set work to get through during his clinical course to-day than he had between the two world wars. At the same time his experience during training is more varied than it used to be. At *University College Hospital Medical School*, for example, his introductory course takes him to two different kinds of hospitals. He later resides at a regional hospital for his study of fevers and may do the same for some of his midwifery.* He attends a large mental observation hospital, and is brought up alongside a tropical hospital with a special annex in the country for dealing with leprosy. He may elect to spend a week-end with an established general practitioner who will show him the "ropes." He is invited to visit industrial concerns and public health institutions in and around London to become acquainted with other aspects of health than that of the treatment of established disease.

At the end of his course he should be conversant with many aspects of medicine other than those usually studied in hospital, and he may have gathered some hints about the type of career in medicine which he thinks would suit him.

King's College Hospital Medical School provides the clinical training for men and women students reading for the medical degrees of the Universities of London, Oxford, and Cambridge. Fifty medical and 25 dental students are admitted annually. The preclinical subjects of the M.B., B.S. (London) are taken in the Faculty of Medical Science, King's College, London. The present regulations for these subjects will be retained until such time as facilities are available for the implementation of the new first M.B. regulations, and students will continue to be admitted for either the first or second M.B. course. Although the scheme for an association with Dulwich Hospital has not yet come into operation, it is hoped that 200 beds at that hospital will be available for teaching purposes in the near future. Full-time tutors in medicine and surgery will be appointed to assist in the teaching.

This year has seen the establishment of the King's College Hospital and Medical School Research Committee which will advise and recommend on all research projects to be financed by the hospital endowment funds and the medical school. Additional research rooms will be available in the near future within the hospital. Plans have been prepared for the building of a new dental school, though the national economic situation may delay them, but certain facilities for teaching are being improved.

Exploratory discussions are taking place for a scheme for the regular interchange of registrars with a selected Canadian university in order to broaden the experience of the potential consultant and teacher. For the present session special internal examinations for Part I of the final M.B., B.S. (London) and for Part I of the second B.D.S. (London) will be held in the medical school. Sir Philip Manson-Bahr has been appointed lecturer in tropical medicine in succession to Colonel C. H. Barber, who resigned last year. Other activities during the year included a week of medical films. During the 12 months up to May of this year 35 students gained qualifying degrees in medicine and dentistry in the Universities of London, Oxford, and Cambridge, including two with honours, and 37 students obtained diplomas in medicine and dental surgery of the Conjoint Board.

St. George's Hospital Medical School has for some time been submitted to the handicap of cramped and inconvenient premises on the assumption that rebuilding was imminent. When it became obvious that no such project would be completed for at least a decade the school, with the help of the University of London, embarked on a plan of reconstruction at Hyde Park Corner of which the greater part has now been completed. The administrative offices and students' refectory and club were moved over a year ago to larger premises in Knightsbridge adjoining the school, while the old buildings were being converted for the use of the department of pathology. The school has now a first-class new building of three stories with adequate space to house the teaching and research of this department. Part of it is already in use, but there will be a formal opening in October. Increased facilities for clinical teaching are still needed, but there is hope of an improvement in the reasonably near future.

In the meantime, by rigidly restricting the entry to 45 students a year, it is possible to maintain the St. George's tradition of personal instruction to small classes at the bedside.

Charing Cross Hospital Medical School has had a good record in the past year. Examination results do not necessarily indicate the amount of work done, but even so the fact that during the year over 90% of the students completed the second M.B., and at the recent final examination in the M.B., B.S. (London) 72% of the students completed the examination (as contrasted with the University average of 50%), gives a creditable result. In addition, two past students gained the M.D. (London) and one was successful in the M.S. (London). The preclinical departments of anatomy, physiology, biochemistry, and pharmacology, which were re-established after the war, received special recognition in the inspector's report when the medical school was last visited.

The medical school had planned to commence departments of chemistry, physics, and biology starting in October, 1952, but owing to the country's financial stringency this scheme has had to be postponed for at least a year; therefore plans to teach these subjects at the Northern Polytechnic, Holloway, in conjunction with the medical school have been made as an interim measure; this will make it possible to start the integrated course in the preclinical subjects in 1953, in accordance with the regulations of the University of London. Again owing to financial stringency the Northwick Park rebuilding scheme on behalf of the hospital and medical school has had to be postponed, but directly a starting date is fixed this scheme can be put into immediate operation.

The students themselves have made special efforts to improve the corporate life of the school, and although the small size of the school has made it difficult to produce a good rugger team, in all other departments the students' efforts have met with great success. In the clinical period the importance of fitting the students for general practice (into which most of the students will probably go) has been emphasized by the introduction of the special course of instruction in the form of a "G.P. firm," by means of which students in their final year have been "apprenticed" to selected general practitioners in the Harrow and Wembley areas, who have given them a course of instruction for a period of one month in the intricacies of general practice.

The preclinical departments of *St. Bartholomew's Hospital College* are now re-established in Charterhouse Square. The portion of the college where much war damage was done has been repaired and reconstructed. The clinical work of the students is carried on at St. Bartholomew's Hospital. Here adequate facilities are available for instruction in all subjects, including pathology and midwifery. Over 100 hospital appointments are available each year to students who have passed their qualifying examination. Clinical appointments are available for undergraduates each quarter. Scholarships and prizes to the value of £2,000 are awarded annually.

Revised Entry Requirements

The new preclinical wing at the *Royal Free Hospital School of Medicine* was opened by Queen Elizabeth, the Queen Mother, in October, 1951. The new building has been in use since last summer and has given all departments greatly improved facilities for both teaching and research.

*According to some information compiled by the British Medical Students' Association the compulsory periods of residence for midwifery are eight weeks at University College, St. Mary's, and London Hospital, four weeks at St. George's, and thirteen weeks at the Royal Free. At provincial medical schools the most common period is eight weeks, but at Birmingham, Leeds, and Manchester it is thirteen weeks.

Approval has been obtained for the formation of a joint school and hospital department of physics under the direction of a university reader. On the hospital side work on the conversion of further wards at the Liverpol Road Branch of the Royal Free Hospital is proceeding rapidly, and when it is completed the obstetrical and gynaecological beds at present at the Gray's Inn Road Branch will be transferred there to form a single unit.

The number of applications for admission to the Royal Free Hospital School was still greatly in excess of the places available, and less than one in seven could be accepted. The students at the beginning of last session numbered 462. The annual intake, including a limited number of entries to the clinical course, is approximately 90. The first-year entry for 1952 has been increased to facilitate the changeover to the new regulations of the University of London for the preclinical course in October, 1953. The entry requirements have been revised for that year to ensure that first-year students will in general have reached an advanced level in the examination for the general certificate of education in physics and chemistry before entry. The clinical lecture timetable and the quarterly appointments for clerks and dressers have been reviewed during this session and among other changes a new systematic course of lectures in medicine over a two-year period is being introduced to replace the separate series of lectures at present given. During the last session 52 students gained qualifying degrees, including one with honours in obstetrics and gynaecology. The teaching staff consists, in the preclinical departments, of 2 professors, 4 readers, 8 senior lecturers, 9 lecturers, and 9 assistant lecturers; and, in the clinical departments, of 1 professor, 1 director (part-time) of the obstetrical and gynaecological unit, 4 senior lecturers, 6 lecturers, and 65 part-time clinicians.

The *West London Hospital Medical School* at Hammersmith is for the moment admitting no further undergraduate students, and the extent of future co-operation with the Postgraduate Medical School at Shepherd's Bush is still under discussion; no final decision may be made for some time. During the last 12 months the West London School has been completing the education of its remaining undergraduates and at the same time giving postgraduate instruction to students referred to it by the Postgraduate Federation and to some others who apply direct.

MEDICAL EDUCATION AT OXFORD AND CAMBRIDGE

Limited Entry at Oxford

During the coming academic year at Oxford University 55 men and 10 women will again be admitted as new preclinical students. The number continues to be restricted by decree. The selection of candidates is made by a central university committee; names are put forward by colleges, so that preliminary acceptance by a college is essential for any prospective medical student. Students reading medicine at Oxford must in addition qualify for a B.A. degree. Almost all the medical students do this by taking the final honour school of animal physiology, which normally occupies them for one year after they have taken the first B.M. examination in organic chemistry, anatomy, and physiology. A few students take instead the final honour school of psychology, philosophy, and physiology. The new physiology department is nearing completion, and should be ready for occupation in 1953. After taking the B.A. degree most students do a course in general pathology, bacteriology, and pharmacology, lasting two terms, before going on to their clinical studies.

The entry to the clinical section of the school continues to be limited to 32 students a year, so that a high degree of personal supervision is possible and opportunities for practical experience may be enlarged. About two-thirds of the clinical students are drawn from Oxford preclinical students, and the remainder come from other universities, normally to take the degree of their own university. At the present time the clinical students include men from Cambridge, Leeds, and London Universities, and, in addition, scholars come regularly from the Dominions. By assembling such a mixture of students the University hopes to minimize any risk of parochialism among students who receive their complete medical training in Oxford.

The Radcliffe Infirmary (520 beds) remains the principal teaching hospital, but practical instruction is also given in other members of the Oxford United Hospitals Group (1,250 beds). For example, tuberculosis is taught at the Osler Pavilion, infectious diseases at the Slade Hospital, and students spend two months in their final year at the Churchill Hospital doing general medicine and certain specialties. In addition the Wingfield-Morris Orthopaedic Hospital is used for orthopaedic training, and the Littlemore Hospital for training in mental diseases. The small size of the student body ensures good opportunities for practical experience.

In both medicine and surgery the students at Oxford spend half their time in a "firm" of four students, and half in a "firm" of eight students. Instruction is given partly by the whole-time Nuffield professorial units of medicine, surgery, obstetrics and gynaecology, anaesthetics, orthopaedic surgery, and plastic surgery, and partly by the consultant staff of the Radcliffe Infirmary. For example, in general medicine all students spend three months with a consulting physician and three months with the professor of clinical medicine. In this way students are provided with a mixture of academic and vocational training.

The Radcliffe Infirmary is an active centre of clinical research, and it is hoped that students will be stimulated by being taught in this environment. At the same time the large share in the teaching taken by the consultant staff ensures that the course is rich in practical instruction. Throughout the clinical course each student has a teacher who sees him regularly in the traditional Oxford way. The tutorial system is proving to be a valuable part of clinical education.

A new statute and new regulations governing the degree of Master of Surgery took effect in October last, and the first examination was held at the end of Trinity term, 1952.

Cambridge University Medical School

Admission to the University of Cambridge may be secured only by members of the colleges and of Fitzwilliam House. Most of the colleges will not admit candidates for the degree of B.M. and B.S. unless they have passed or secured exemption from three parts of the first M.B. examination. All college entries are subject to a University quota, and the number wishing to enter still exceeds the number of places which can be found. Before a candidate can be admitted to the final M.B. examination he must obtain honours in a tripos (or if over standing for honours must reach the honours standard in Part I of the natural sciences tripos), must reach a qualifying standard in anatomy and physiology (or pass a qualifying examination in these two subjects), and must pass an examination in pharmacology. Part I of the final examination—the basic subjects of pathology, pharmacology, and therapeutics—may be taken after two and a half years of clinical study. The clinical subjects—medicine, surgery, and midwifery and gynaecology—may be taken after three years of clinical study. Excellent facilities for bridging the gap between the preclinical and clinical periods are provided by the Long Vacation courses in elementary clinical methods and introductory psychology (including practical demonstrations) held each year in July and August. In the course in clinical methods instruction is given in the simple technique of making a proper examination of patients presenting at the general and special departments of a hospital, and lectures on history-taking, epidemiology, medical statistics, and medical genetics are included. With the establishment during the year of a School of Veterinary Studies in Cambridge, medical and veterinary students will be working together for many of the subjects leading to the tripos.

Postgraduate Facilities at Cambridge

The School of Postgraduate Teaching and Clinical Research at Cambridge at present comprises the departments of medicine, experimental medicine, radiotherapeutics, and human ecology. The last-named department, which includes the University Health Service, has now moved to a new building at Fenner's. In the John Bonnett clinical laboratories the pathological and biochemical services of the United Cambridge Hospitals are provided by university officers under the direction of the professors of pathology and biochemistry. Trainee posts in clinical pathology offer opportunities for those seeking experience in all branches of the specialty, including histology and post-mortem work, bacteriology, haematology, and chemical pathology.

Postgraduate students may be attached for long or short periods to any department of the United Cambridge Hospitals and to the departments of medicine, experimental medicine, radiotherapeutics, and human ecology, in which facilities are available for working for diplomas or for carrying out a research programme with a view to obtaining a higher degree of the university. Between October and July in each academic year special sessions devoted to teaching are given by all members of the consultant staff of the hospitals. Out-patient clinics, ward rounds, and operating sessions may be attended by arrangement. Other teaching activities organized by the medical school include a clinico-pathological conference held on the first Wednesday of each month, and one-day symposia, also held monthly, on subjects of special interest to general practitioners. These symposia usually take the form of lecture-discussions followed by case demonstrations, and have proved more popular and convenient than 7- or 14-day courses, one advantage being that practitioners are usually able to attend without making special locum arrangements. These regular monthly conferences and symposia afford opportunities for general practitioners and others to meet the staffs of the hospitals and of the various departments of the medical school.

Courses for General Practitioners

Under the Ministry of Health scheme all postgraduate courses and symposia at Cambridge are open, without fee, to practitioners in contract with an executive council in the National Health Service and who have not less than 500 (or in the case of a rural practice 250) persons on their N.H.S. list. It is no longer necessary for a practitioner to seek Ministry of Health approval before attending one-day symposia unless, exceptionally, he wishes to claim for employment of a locumtenent. Practitioners who do not qualify for a grant under the Ministry of Health postgraduate scheme are charged fees at rates corresponding with those which would otherwise have been payable by the Ministry.

The Director of Postgraduate Education for the Cambridge region is the Regius Professor of Physic, Sir Lionel Whitby. Practitioners desiring further details of these postgraduate facilities should apply to the secretary of the Medical School, the Naval Hut, Downing College, Cambridge.

MEDICAL SCHOOLS IN ENGLAND AND WALES

Under the National Health Service Designation of Teaching Hospitals (No. 1) Order, 1948, certain groups of hospitals have been designated teaching hospitals in the 10 university medical centres outside London—namely, the Universities of Liverpool, Manchester, Durham, Leeds, Sheffield, Cambridge, Oxford, Bristol, Birmingham, and Wales. The designated hospitals attached to the University of Manchester Medical Centre, for example, include the United Manchester Hospitals, Manchester Royal Infirmary, St. Mary's Hospitals for Women and Children, Manchester Royal Eye Hospital, the Dental Hospital of Manchester, and Manchester Foot Hospital.

Lancashire and the North

Of the new students who entered the Medical School of the University of *Manchester* in October, 1951, approximately one-third were able to take advantage of the new regulations whereby exemption may be obtained from Part I of the first M.B., Ch.B. examination.

The Clinical Sciences building in York Place is now almost complete and is partly occupied by the departments of pathology, medicine, social and preventive medicine, occupational health, otolaryngology, rheumatism research, and obstetrics and gynaecology. Problems of accommodation in the medical school will be somewhat eased by reallocation of the vacated space. Under the Medical Act of 1950 all students completing a final qualifying examination in medicine and surgery after January, 1953, will require to be employed as house-officers in an approved hospital for a period of 12 months, so as to acquire the experience requisite for full registration. A list of approved hospitals in this region has been submitted to the General Medical Council.

The university, with the help of the Nuffield Trust, the Rockefeller Foundation, and the Manchester City Council, is establishing a teaching health centre. Although this venture is primarily designed to meet the needs of teaching, the health centre conforms broadly to the specifications recently laid down in the Messer report of the Central Health Services Council. It will aim at uniting the work of the family doctor with that of the preventive health services, and it will seek to supply the needs of good general practice in terms of scientific aids.

The medical school and the university suffered a grievous loss in the sudden death of Professor H. S. Raper in December last. Professor Walter Schlapp has been appointed Dean of the Faculty on a part-time basis.

In the Medical School of the University of *Liverpool* the annual intake of undergraduates has remained the same, at 100, of whom 44 were admitted into the second year. The Dean states that there does not seem to be any sign of a falling off in the number of applicants for admission, but it is impossible to speak definitely—and this applies to all the medical schools—because the practice of applying to several schools for admission may be increasing, while the total number of applicants throughout the country may be on the decline. The revision of the curriculum has been under consideration at Liverpool, and it is probable that some radical changes will be decided on in the near future which are designed to relieve the present overcrowding of the syllabus.

During the year provision has been made for the inclusion of human anatomy among the Honours Schools of the Faculty of Science, thus making it possible for selected students to intercalate a year after passing their second M.B. examination to read for an honours degree in anatomy, as for many years they have been able to do in physiology. Next year certain endowed lectureships become due, and among those who have accepted invitations to come to Liverpool to deliver lectures are Sir Geoffrey Jefferson, Professor A. Haddow, and Professor W. E. Le Gros Clark.

The Medical Faculty at Liverpool have had under review the approval of hospitals for the period of resident service required under the Medical Act, 1950. It is not anticipated that any difficulty will be experienced by graduates in finding appropriate resident posts. A start has been made on the building of the new wing of the medical school, which will house the departments of pharmacology and bacteriology and will provide animal-house accommodation. Owing to the shortage of steel the original plans have had to be changed, but it is hoped that construction will be completed by the end of 1954. During the summer term at Liverpool the lecturer in clinical tuberculosis started an investigation on the medical students and Mantoux-tested 235, of whom 37 were given B.C.G. inoculation. It is hoped that this will become an annual routine procedure.

At the University of *Durham*, although there has been a fall in the number of applications for admission, competition for entry is still very keen, and applications are still in excess of the available places. There have been no major changes in the curriculum during the past year. With regard to previous changes, the extension of the course in pharmacology to three terms has proved satisfactory, the percentage of passes in the professional examinations being higher than for some years past. The school again arranged a two-week visit during the summer by a party of Norwegian medical students from Oslo. During their stay in Newcastle the students were given an insight into the methods and facilities of the medical school and teaching hospital. The annual meeting of the British Medical Students' Association will be held this year in Newcastle.

The Yorkshire Schools

The Medical School at the University of *Leeds* has now had its first experience of the new form of final examination. The reactions of the examiners, at any rate, have been most favourable; the views of the candidates appear, not unreasonably, to be coloured by the result. The new first M.B. course will begin in October, and in the meantime progress is being made in the review of the remainder of the curriculum. Applications for entry to the school continue at the very high rate of the post-war years, and the selection of students is a matter which continues to cause considerable discussion here as elsewhere.

In June a ceremony was held at the Algernon Firth Institute of Pathology at Leeds, when a portrait of Emeritus Professor Stewart, in the form of a bronze plaque, was unveiled. At the same time the establishment of a Matthew Stewart Lectureship was announced, the lecture to be given every third year. Professor Stewart was for many years Professor of Pathology and Dean of the Faculty of Medicine at Leeds.

At *Sheffield* the year at the medical school has been one of steady work rather than of dramatic development. Various interesting projects have come, and continue to be, under active discussion, but most of them have not yet reached the stage at which they can be put into practical effect. It is, however, satisfactory to report that, following discussions by the Faculties of Medicine and of Pure Science, a procedure has been agreed upon which it is hoped will facilitate the taking of the combined degrees of M.B., Ch.B., and B.Sc. with honours in physiology (or, when enlargement of the department chiefly concerned allows it, in anatomy). The introduction of the new medical curriculum in 1947 upset the previously existing arrangements in this regard, but it will now be possible for a student, by undertaking certain extra work during his second and third medical years and by interposing one extra year (which will include a long vacation term of six weeks) between the second M.B. examination and the start of clinical work, to obtain an Honours Science degree in physiology. New ordinances and regulations relating to the degree of M.D. have been approved and come into force in October, 1953. The submission of a thesis is made obligatory. Microbiology, at present comprised within bacteriology, will next session become a department in its own right.

Midlands and the West

One interesting event at the Medical School of *Birmingham* University was the receipt of a spontaneous communication from the clinical students who had reviewed their curriculum by means of a questionary and gave their candid criticisms and conclusions. Some things of real value were brought to notice, and the Board of Clinical Studies has taken steps to give effect to certain of the suggestions made. It was obvious, however, from the results of the questionary that many of the clinical students had failed to make the best use of their opportunities because they were confused by the multitude of classes listed in the programmes and made their choice between them without any serious thought or coherent plan. The board decided that an attempt should be made to enlist the support of the clinical staff of the teaching hospital in the development of a tutorial system, and the scheme is now in operation whereby small groups of students are allocated to clinical teachers who act as personal tutors during the students' clinical course. The board has also arranged an experiment by which students in their final year are to be attached to general practitioners.

Measures have been discussed to meet the situation which will arise when it becomes necessary for a graduate student to acquire satisfactory experience as a hospital resident before he is fully registered for independent practice. It seems clear that the responsibility for supplying the necessary certificate within the meaning of the Medical Act, 1950, lies with the licensing body—that is, the University through its Faculty of Medicine and its Dean—and it is obviously desirable that the definition of "satisfactory experience" should not vary between different licensing authorities. Discussions at the General Medical Council and at the conference of deans of provincial medical schools have helped to clarify the position, and by the time the "appointed day" arrives these should be resolved.

At the beginning of the year the Board of the Faculty at Birmingham discussed the general policy to be pursued during the next quinquennium, and decided that everything possible should be done to foster closer contacts and co-operation between preclinical and clinical departments. To this end the department of pharmacology has already established outposts in the General, the Queen Elizabeth, and the Children's Hospitals for the study in human subjects of gonadotrophin excretion and the mechanism of fat absorption and its disorders. The latter work, by the way, attracted the attention of the Army medical authorities, and acute cases of tropical sprue are now brought by air from Hong Kong to the wards of the teaching hospital for investigation and treatment. Collaboration between the departments of anatomy, chemistry, physics, and pharmacology has led to the application of modern methods to the study of cellular ultrastructure, with special reference to lipoproteins. From the department of anatomy has come a suggestion for the formation of a group in the hospital to investigate certain aspects of steroid chemistry and copper metabolism in cases of arthritis and liver damage. The organization of the department of pathology has been reviewed, and, as conditions permit, a department of pathological studies will emerge with divisions of experimental pathology and of morbid anatomy with histology. The Leith Professor of Experimental Pathology will have access to hospital beds in the medical professorial unit and will be relieved of responsibility for routine necropsy work.

The experience at Birmingham suggests that this closer association of the preclinical and clinical departments will prove to be a very valuable development, and the new laboratories to be erected on the hospital's site should promote it.

The appeal for the memorial lectureship to the late Dean, Sir Leonard Parsons, realized about £4,500, and subscriptions are still coming in. The terms and conditions of the lectureship have now been approved. The first lecturer will be Dr. Edward Park, of Johns Hopkins Hospital. During the year a number of distinguished visitors have lectured at the school.

There have been few changes in the *Bristol* Medical School during the past year, and some additional staff appointments have had to be postponed until the awards of the University Grants Committee for the coming quinquennium are known. A week of nursing in the wards has been introduced at the end of the clinical methods course; the students are on duty for the same hours as day nurses and thus become familiar with all nursing procedures before they start their clerkships and dresserships. In spite of some "tired feet," this week has proved a most popular innovation with the students, owing mainly to the helpful co-operation of the ward sisters. The year opened with the annual meeting of the British Medical Students' Association, which was well attended. The liaison of the dental school with the plastic surgery units has been

strengthened to provide improved facilities for facio-maxillary surgery. The veterinary school is part of the Medical Faculty. A chair of veterinary surgery has been established.

Welsh National School of Medicine

A number of matters which were in train at the beginning of the year at the Welsh National School of Medicine at *Cardiff* have been completed or advanced. The new Institute of Pathology has been formally opened and occupied not only by the teaching departments of pathology and bacteriology but also by the departments serving clinical pathology and bacteriology at Cardiff Royal Infirmary, a domiciliary service for the area, and the main public health laboratory of the Medical Research Council in Wales. The new lecture theatre which it contains is an asset to the school and to the local and visiting medical bodies which the school is glad to accommodate. The research and office accommodation for the anaesthetic department is virtually complete. Premises have at last been found which enable paediatric clerks to have a period of residence during their appointments. The nucleus of a department of photography and illustration has been established, including the appointments of clinical photographer and medical artist.

During recent years a number of new teachers, both whole-time and part-time, have joined the staff and educational problems have been tackled with vigour and enthusiasm. The altered curriculum consequent on the revision of the regulations for the degrees of M.B., B.Ch. has received careful consideration and will be brought into effect as soon as possible. In particular the arrangement to come into line with most other medical schools by dropping the obligatory B.Sc. degree and holding the examinations in March–April instead of June will take effect in 1953, and the transitional course will occupy the summer term. At the same time new B.Sc. regulations will enable students who wish to do so to take an honours degree in anatomy or physiology by pursuing an additional year's study.

The posts available in Wales and Monmouthshire for the impending obligatory hospital year for recently qualified men or women have been very carefully considered, and 110 posts in 23 hospitals with 5,585 beds have been approved and submitted to the General Medical Council.

A site of 53 acres at Heath Estate in the city of Cardiff is now the joint possession of the United Cardiff Hospitals and the Welsh National School of Medicine. Preparation of the schedules for an architectural competition for the new medical teaching centre has occupied much time and is nearing completion.

SCOTTISH AND IRISH SCHOOLS

In the Medical School of *Glasgow* University almost all the additional students taken over from the local extramural schools in 1947 have now completed their curriculum and qualified. As a welcome consequence the extreme congestion of the last few years has been almost completely relieved and the number of students in attendance has reverted to the level which was regarded as normal prior to that year. There now remains only one full year of students undertaking the former five-year curriculum, and these are due to qualify in 1953. Thereafter there will be relatively few medical graduates from this school until July, 1955, when the first full year of six-year curriculum students are due to graduate. So far as concerns the courses and organization for instruction in human medicine, there have been no changes of major importance during the year, though the additional hospital units recently brought into service are proving of increasing value, not only in general medicine and surgery but also in psychiatry.

The main developments in the Faculty of Medicine have concerned the dental and veterinary schools, in both of which new chairs have been established. The course for the B.D.S. has now been in existence for five years, and the first quota of graduates received their degrees in July.

In the School of Medicine of the University of *St. Andrews* instruction in the subjects of the clinical years of study is given in Dundee, while the premedical and preclinical subjects can be studied either at Dundee or at St. Andrews. The annual intake of students to the Faculty of Medicine is limited to between 70 and 80 to ensure that the hospital facilities available are sufficient to allow of adequate clinical instruction being given to each undergraduate, as advised by the Goodenough Committee. In October, 1948, the six-year curriculum, recommended by the General Medical Council, was introduced, and the necessary arrangement of work in the later years of study has now been completed. The University of St. Andrews has instituted chairs in social medicine and in child health, so that in this respect also the recommendations of the Goodenough Committee have been fulfilled.

So far the introduction of the National Health Service, though it has called for a complete reorganization of post-graduate instruction with a view to the training of specialists, has had but little influence upon the undergraduate.

At both Dundee and St. Andrews there are excellent student residences which accommodate undergraduates from all or any of the faculties. Medical students in their early years are encouraged to reside in these, so that there is a width of contact among the undergraduates which is of great educational value. In addition to these there is the William Low Residence for medical students, situated near the principal teaching hospital, which is devoted exclusively to undergraduates in their clinical years of study.

In the session 1951–2 at the School of Medicine, *Aberdeen*, there were 541 students (417 men and 124 women). By resolution of the Senatus Academicus in January last, approved by the University Court in February, "A candidate for examination in the subjects of the first M.B., Ch.B. degree examination must enter for all the subjects together. A candidate who fails to pass in all three subjects at one Diet of Examination may obtain exemption from further examination in one or in two of the subjects provided that he attains a higher standard than the ordinary pass mark in such subject or subjects."

The new building in Old Aberdeen in which the department of chemistry and related departments are to be housed has been completed and will be opened in September by Professor Sir Robert Robinson, of Oxford.

The Edinburgh Faculty of Medicine

At the University of *Edinburgh* the year has been very busy as usual. The number of applications for admission in 1952 to the course leading to the M.B., Ch.B. degrees has continued to be high in relation to the number of places available. The degree course occupies six years, and the stage has been reached where students begin in October next the fifth year of this curriculum. A small group of students will attend the final year of the five-year medical curriculum during 1952–3, and will be due to graduate in July next. Approximately 200 students under the six-year curriculum will graduate each year.

More places are now available in the School of Dental Surgery for the five-year course leading to the degree of B.D.S. With the institution of the degree in veterinary medicine and surgery and the incorporation of the Royal (Dick) Veterinary College within the university, the five-year course for this degree will begin in October, 1952. First-year students for degrees in medicine, dentistry, and veterinary medicine and surgery attend the same first-year course, which has now been revised to permit students to take the first professional examination in two parts, one in March and one in June, instead of all four subjects in June as formerly.

Queen's University of Belfast

At the Medical School of Queen's University, *Belfast*, the number of entries each year is restricted to 110, of which up to 20 places are allocated to the school of dentistry. Applications for admission far outnumber the places avail-

able, and priority is given to children of persons normally resident in Northern Ireland, to children of graduates of Queen's University, and to ex-Service applicants. A few places are reserved for applicants from the Crown Colonies, but all such applicants must be sponsored by the Colonial Office. When priority places have been allotted any which remain (usually not more than five or six) are allocated to selected applicants from Great Britain and overseas. The requirements for admission are: (1) matriculation in five subjects, of which English, mathematics, and a modern language are compulsory; (2) a qualifying examination in Latin; and (3) the premedical examination in chemistry and physics. Details of the requirements and of examinations recognized for exemption may be obtained from the secretary, Faculty of Medicine, 25, University Square, Belfast. External examinations and courses of study for the first M.B. are not recognized for exemption from the course and examination for the first M.B. in Queen's University.

The new curriculum has now been introduced throughout the whole six years, and the last examination under the old curriculum was held in June, 1952. A compulsory course in clinical tuberculosis for sixth-year students is to be introduced in 1953. Much progress has been made with the new clinical science blocks and it is hoped that many of the additional facilities will be available early in the new session.

The death of Dr. Thomas Walmsley, Professor of Anatomy since 1919, was a severe loss to the medical school. Dr. J. J. Pritchard has been appointed to that chair, and Dr. Graham MacGregor Bull to the chair of medicine. The staff has been increased by the establishment of a lectureship in physiology, with special responsibility for dental students, and a second lecturer (temporary) in orthodontics pending the appointment of a lecturer in child and preventive dentistry. Several other lectureships remain to be filled. The teaching staff now consists of 15 professors, 7 readers, 44 lecturers, and numerous special lecturers, tutors, registrars, and assistant lecturers.

The students' health department plays an ever-increasing part in the life of the university. B.C.G. inoculations have been carried out successfully on Mantoux-negative preclinical medical students, with 100% conversion and no complications.

The School of Physic at Trinity College, *Dublin*, has a full complement of students, applications exceeding available places. The building for the Moyne Institute of Preventive Medicine will be ready for occupation about the end of the year. A new School of Social Medicine is to be established. The Dublin teaching hospitals will not be able to provide post-qualification hospital appointments under the new British Medical Act for all graduates of the three Dublin schools, but it is hoped that suitable accommodation can be found in provincial Irish hospitals and perhaps in some English ones.

The National University of Ireland has three constituent university colleges—those of Dublin, Cork, and Galway. Between 200 and 300 students graduate in medicine from these colleges each year.

THE COLONIAL MEDICAL SERVICE

Candidates for the Colonial Medical Service, in which vacancies occur all over the world, the largest number being in Africa, Malaya, and the Caribbean area, must ordinarily be British subjects holding medical qualifications registrable in the United Kingdom, and should have had at least 12 months' postgraduate experience in hospital before appointment. Candidates for the permanent service must be under 40 or 45 years of age, according to the age of retirement in the territory, which in West Africa is 50 and in most other territories 55. In some territories, with the Governor's permission, officers may serve beyond the retirement age. Short-term contract appointments are available for candidates above the age limits or who do not wish to commit themselves to a Colonial career at the outset.

A scheme has been brought into operation in many Colonial territories whereby doctors in the National Health Service may take up appointments in the Colonial Medical Service for temporary posts up to six years without loss of National Health Service pension rights. The scheme provides for the payment of a gratuity at the end of the overseas service, but those who are eligible and wish to transfer to the permanent and pensionable establishment of the Colonial Medical Service will have opportunities to do so.

The Colonial Medical Service also offers special opportunities and experience not obtainable at home, and the experience is of great value both in practices and in hospital appointments should the doctors concerned elect to return to this country. Officers appointed to the permanent service are normally required to take a course in tropical medicine and hygiene either before going overseas or during their first leave. Arrangements exist at present for young doctors liable for National Service to receive indefinite deferment of call-up if they serve for a minimum of three years in Malaya.

In the first instance medical officers are usually appointed for general duties, requiring all-round ability and a balanced outlook upon both preventive and curative medicine, often implying charge of district hospital and responsibility for medical administration of a district, although many officers are employed on clinical duties in the large hospitals. Some posts are concerned solely with public health work, for which the possession of a D.P.H. or special experience in preventive medicine is necessary. In the general field there are ample opportunities for original investigations, and subsequent specialization is encouraged. Opportunities are offered wherever possible for postgraduate study.

Specialist Appointments

For the specialist appointments, a large number of which exist and are normally filled from within the service by officers with the necessary aptitude and qualifications, a very high standard of professional attainment is required. Senior administrative appointments are also almost invariably filled by the promotion of serving officers. Promotion may take place in the administrative or specialist branches either in the territory where the officer is serving or on transfer to another. An officer need not transfer unless he wishes. The total of the establishments of the various Government medical departments amounts to some 800 European medical officers and an even larger number of officers appointed locally. Officers possessing qualifications or experience in pathology would be considered for appointment to the laboratory establishments. In this branch a great deal of the research work has been carried out which has led to important advances in tropical medicine. Vacancies arise from time to time for women doctors, particularly for those with special experience in obstetrics, school health, child welfare, and nutrition. Naturally, in tropical and subtropical countries diseases peculiar to hot climates predominate in the general pattern of morbidity, but the whole range of pathological conditions found in temperate climates occurs in the Tropics, and doctors in the Colonial Medical Service are expected to keep abreast of modern medical opinion in Great Britain. Life in comfort and in hygienic surroundings is now possible in areas which, two decades ago, were notoriously unhealthy, but much remains to be done, and there is ample scope for initiative and original observation.

Full particulars of terms and conditions of service may be obtained from the Director of Recruitment (Colonial Service), Colonial Office, Sanctuary Buildings, Great Smith Street, London, S.W.1.

Other Appointments Abroad

A small number of British doctors are employed by the Foreign Office and attached to certain British embassies and legations in capitals in Eastern Europe and the Near East, where their function is the medical care of the staffs and their families and sometimes of other British subjects. The

Foreign Office also employs medical advisers to the British Middle East Office in Cairo and to the Political Resident on the Persian Gulf. A certain number of British doctors are employed in occupied territories.

Medical schools overseas employ doctors from the United Kingdom as teachers. The recruiting agency for certain of the Colonial medical schools is the Inter-Varsity Fellowship for Higher Education in the Colonies (1, Gordon Square, London, W.C.1). Overseas hospitals such as the King George V Merchant Seamen's Hospital, Malta; the Hertford British Hospital, Paris; and the British Hospital, Lisbon, also employ British doctors, and short-term resident appointments are frequently advertised by Dominion and American hospitals. Medical staffs are employed by certain commercial undertakings working abroad, including large engineering firms, development corporations, and mining companies.

The larger shipping companies offer employment on a more or less permanent basis for about 100 ship surgeons. In the case of smaller companies the doctor's engagement is usually for the voyage only. Application should be made to the companies at their head offices.

MISSIONARY MEDICINE

Medical missionary work offers opportunities to medical men and women who wish to give their services where the need is greatest. Christian missions have played a major part in giving China a modern medical profession. In India and Pakistan they have helped to maintain high ethical and professional standards and have specialized in nursing and medical education. In Africa and other less developed regions they have been pioneers in rural health services and the training of auxiliary staff. In many parts of the world the work is becoming integrated with the Government services, though still maintaining its identity. For undergraduates who have this service in view there are hospitals in London and Edinburgh. After qualification a period of 18 months or two years in resident appointments is advised, and, for some, special diplomas or higher degrees.

Under certain circumstances exemption is given from National Military Service. Special missionary training is required by some of the societies. Service is for terms of from 18 months to five years, according to the country and the climate. During furlough there are opportunities for postgraduate study. While short terms of service are considered, offers for life service are preferred. Salary is on a missionary subsistence basis, with allowances, free passages and quarters, and pension provision. There are schools for the children of missionaries at home and in some of the mission fields.

Applications from students or qualified men and women should be made either to the secretary of one of the denominational or interdenominational societies or through the local branch of the Student Christian Movement or the Inter-Varsity Fellowship, or to the chairman, Medical Advisory Board of the Conference of British Missionary Societies, Edinburgh House, 2, Eaton Gate, London, S.W.1.

MEDICAL SERVICE OF L.C.C.

The largest local authority in the country, the London County Council, employs about 100 whole-time medical officers in its Public Health Department, and also employs nearly 500 part-time medical officers. The duties of those holding whole-time appointments in the higher grades are mainly administrative. Generally speaking, the senior officers have graduated through the clinical field and have special knowledge in at least one branch of the service. The assistant medical officers are mainly engaged in the school health and maternity and child welfare services. Suitable qualifications are the D.C.H. and the C.P.H. or D.P.H. Arrangements are made for some of the officers to have clinical responsibilities at hospitals and to gain experience of environmental health services in the metropolitan boroughs.

The part-time officers are employed in a variety of work—for example, in residential nurseries, welfare institutions, staff examinations, sessional work at clinics, and in school medical inspection. By arrangement with the London School of Hygiene, the Institute of Child Health, and several undergraduate schools, students have opportunity of gaining experience in the Council's various services.

The present salary of the medical officer of health to the Council is £3,500 a year and that of the deputy medical officer is on the scale of £2,050–£250 (biennially)–£2,550.

For divisional medical officers the salary scale varies according to the population of the division (London is divided into nine such areas). For divisions which have a population of up to 400,000 the scale is £1,500–£50–£1,900, and for those with a population of over 400,000 it is £1,600–£50–£1,950. There is one exception to this general pattern—namely, a divisional medical officer who is also medical officer of health of the two metropolitan boroughs comprising his division. His scale is £2,400–£100–£2,600, then plus £50, to £2,650. This officer has two assistant divisional medical officers (£1,470–£1,720 and £1,170–£1,420), each of whom is also deputy medical officer of health of one of the boroughs. Scales of other assistant divisional medical officers are £1,350–£50–£1,650 (up to 400,000 population) and £1,400–£50–£1,700 (over 400,000). The scales for other grades are: senior principal medical officer, £1,950–£112 10s. –£2,175; principal medical officers and psychiatrist (whole-time), £1,650–£50–£1,950; senior assistant medical officers, £1,250–£50–£1,500; and assistant medical officers £850–£50 –£1,150.

CIVIL SERVICE MEDICAL STAFFS

The medical staffs of the Civil Service, established and temporary, number about 690, employed in 18 different departments of Government. Under "general service" there are 237 established posts, of which 99 are in the Ministry of Pensions and 53 in the Prison Commission. In the "health" group there are 229 established posts, of which 105 are in the Ministry of Health and Board of Control and 38 in the Ministry of National Insurance. In addition there are about 150 temporary posts, and there are also about 80 posts in the Ministry of Pensions and the Board of Control which are paid National Health Service rates.

A committee was set up under the chairmanship of Sir Harold Howitt to consider and advise on the future organization, structure, and remuneration of medical staffs employed in Government departments. It made certain recommendations, the principal of which was that the scale of the basic grade—that is, medical officer—should remain unchanged at £1,250–£1,725, but that there should be an increase of effective pay by relating the scale minimum to age 35 instead of to age 38, with the result that salaries would be increased by £150 (£50 × 3) all along the line for medical officers of 38 and over and by amounts between £120 and £150 for officers below that age.

The recommendations were not considered satisfactory by the British Medical Association. They were announced before the publication of the Danckwerts award, and the Treasury was asked to reopen the discussions in the light of the new circumstances or to indicate their willingness to refer the matter to arbitration. The Treasury declined arbitration, and only undertook to review the present scale of salaries after they had been given a trial, and then only at the end of a considerable period. The Council of the British Medical Association, whose decision was endorsed by the Representative Body, determined that further advertisements in the *British Medical Journal* for medical appointments in the Civil Service should not be accepted until such time as the matter was referred to arbitration or further discussions had resulted in better opportunities for Civil Service medical officers.

DEGREES AND QUALIFICATIONS

Medical degrees and diplomas are awarded by the universities and also by licensing corporations. The abbreviations for registration following a pass in the final examination in the universities are M.B., Ch.B., in the Universities of Birmingham, Bristol, Leeds, Liverpool, Sheffield, the Victoria University of Manchester, and the four Scottish Universities; M.B., B.Chir., in the University of Cambridge; M.B., B.S., in the Universities of Durham and London; B.M., B.Ch., in the University of Oxford; M.B., B.Ch., in the Universities of Wales, Belfast, the National University of Ireland, and the University of Dublin; and L.Med., L.Ch., also in the University of Dublin.

Between one-third and one-quarter of those who pass the final or qualifying examinations do so under the auspices of one of the three Conjoint Boards—English, Scottish, and Irish. Candidates for the English Conjoint are examined by the Examining Board in England of the three Royal Colleges (Examination Hall, Queen Square, London, W.C.1). The diploma is M.R.C.S.Eng., L.R.C.P.Lond. The Board's examinations are conducted four times a year. The Scottish Conjoint Board furnishes the triple qualification of the Royal Colleges of Physicians and of Surgeons of Edinburgh and the Royal Faculty of Physicians and Surgeons of Glasgow (L.R.C.P.&S.Edin., L.R.F.P.S.Glas.). These three bodies have an arrangement by which, with one series of examinations, students may obtain the diploma. Details may be obtained from the Registrar, 18, Nicholson Street, Edinburgh, 8. The joint licence in medicine, surgery, and midwifery is issued by the Royal College of Physicians of Ireland and the Royal College of Surgeons in Ireland (L.R.C.P.I. & L.M., L.R.C.S.I., & L.M.). Regulations can be obtained from the secretary of the Conjoint Board, Royal College of Surgeons, St. Stephen's Green, Dublin.

The Society of Apothecaries of London (Apothecaries' Hall, Black Friars Lane, E.C.4) confers a diploma registrable under the Medical Act, 1886 (L.M.S.S.A.Lond.). Examinations for the final subjects are held monthly, except in September, and examinations in anatomy, physiology, and materia medica are held quarterly.

The licentiateship of the Apothecaries' Hall of Ireland (95, Merrion Square, Dublin) entitles to registration under the Medical Act, 1886. It enables the holder to practise pharmacy as well as medicine, surgery, and midwifery, which means that he may, if he so desires, open a medical hall.

Diplomas in medicine and surgery registrable in the Commonwealth List are granted by the Universities of Sydney, Queensland, Adelaide, and Melbourne, Ceylon Medical College, University of Ceylon, University of Hong Kong, Royal University of Malta, Newfoundland Medical Board, University of New Zealand, the Universities of South Africa, Capetown, and the Witwatersrand, the King Edward VII College of Medicine, Singapore, and the University of Malaya. Diplomas in the several provinces of Canada are registrable under certain conditions; also, with some exceptions and subject to dating, the Universities of India, the Punjab University, Pakistan, and the University of Rangoon.

Higher Qualifications

A full list of degrees, diplomas, and courses of instruction for higher qualifications, with details of regulations, and fees and courses, appears in the *Medical Practitioners' Handbook*, published by the British Medical Association, from B.M.A. House, Tavistock Square, London, W.C.1.

The Royal College of Physicians of London confers its Membership (M.R.C.P.Lond.) by examination. The pass for Membership is a written examination in the form of a paper on questions of medical anatomy, pathology, and principles of medicine; a paper on questions on the practice of medicine, including the principles of public health, and on psychological medicine; a clinical examination in the clinical wards of a hospital; and an oral examination. Fellowship of the College is subject to election by the Fellows.

The Royal College of Surgeons of England grants its Fellowship (F.R.C.S.Eng.) to those who pass its primary and final Fellowship examinations. The primary examination, partly written and partly oral, is held in January and July, and the final examination, written, practical, and oral, and including examination of patients, in May and November.

The Royal College of Obstetricians and Gynaecologists requires all candidates for its Membership examination to have been registered for at least three years and to have held recognized resident appointments. The examination consists of two written papers, a clinical examination, and an oral examination. The Fellowship is granted to members who are considered to have advanced the science and art of obstetrics and gynaecology.

The Royal College of Physicians of Edinburgh requires of its candidates for Membership that they shall have been qualified for at least two years. The examination is in the principles and practice of medicine and also in a selected department of medicine. Fellows must have been Members of the College for at least three years.

The Royal College of Surgeons of Edinburgh has a two-part examination for its Fellowship: the first a written paper and an oral examination, and the second, a written paper, a clinical and practical examination, and an oral examination in the principles and practice of surgery and in an optional subject.

The Royal Faculty of Physicians and Surgeons of Glasgow grants, after examination, a Fellowship *qua* physician and a Fellowship *qua* surgeon (F.R.F.P.S.G.). Candidates for the Fellowship in Medicine must have been qualified for not less than three years and have been engaged during one of those years in full-time clinical work in a recognized hospital and have spent two other postgraduate years in approved medical work. The examinations are clinical, written, and oral. For admission to examination for the Fellowship in surgery the requirements are similar to those for the Fellowship in medicine examination, and the examination is clinical, written, and oral.

The Royal College of Physicians of Ireland grants its Membership on examination. The Fellowship, to which only members of the College are eligible, is granted by election. The Royal College of Surgeons in Ireland requires two examinations—primary and final—for its Fellowship. The first is in anatomy, physiology, and pathology, and the second in surgery.

All the universities confer the higher qualifications of Doctor of Medicine and Master of Surgery. Liverpool has a degree of Master of Orthopaedic Surgery. At Durham the regulations for the degree of Doctor of Surgery ceased to operate in June last. The new regulations provide that in order to qualify for the degree of Doctor of Surgery a candidate must be of at least six years' standing from admission to the degrees of M.B. and B.S. of the University, and the degree will be awarded primarily in consideration of individual contributions to surgical knowledge either published or in the form of a thesis on a subject or subjects concerned with surgery approved by the Board of the Faculty of Medicine. At Leeds the degree of Master of Surgery may be conferred upon Bachelors of Medicine and of Surgery of the University of not less than five years' standing. Candidates for the degree are required to pursue a course of advanced study and research for two years, one year of which may be part-time. University requirements for the higher qualifications vary and particulars should be obtained from the one selected.

Faculty of Radiologists

The Faculty of Radiologists offers a Fellowship (F.F.R.) to medical graduates of five years' standing who have spent at least one year in general clinical work at approved hospitals, hold a radiological diploma, and, since obtaining it, have practised radiology exclusively for at least two years. Candidates are required to pass an examination. Those who hold medical or surgical qualifications may be exempted from the examinations in general medicine, general surgery, and pathology.

POSTGRADUATE EDUCATION

Facilities in London

The British Postgraduate Medical Federation (2, Gordon Square, London, W.C.1), which is a school of the University of London, comprises the Postgraduate Medical School at Hammersmith Hospital and 14 institutes in various branches of medicine and surgery associated with special hospitals. These institutes are in various stages of development, and the number of students who can be admitted to the clinical practice of some of the hospitals is limited. Resident clinical appointments are available in the teaching hospitals to suitable students at the institutes, and there are opportunities for research by selected graduates.

Courses of instruction are given at all the institutes throughout the academic year. Two or more years of hospital work are normally advisable before beginning work in the special branches.

To provide postgraduate education in London, supplementing the provisions at the undergraduate medical schools and teaching hospitals, a joint board has been set up in which the Federation and the three Royal Colleges participate. Each of the Royal Colleges arranges courses of lectures in the clinical aspects of its specialties and provides expert advice and guidance on suitable hospital appointments and programmes of study for its higher qualifications.

Specialist Institutes

Below are very brief particulars of the specialist institutes:

The Postgraduate Medical School of London (Hammersmith Hospital).—University departments in medicine, surgery, and pathology. Teaching in clinical departments based on ward work and supplemented by lectures. Courses for university diploma in clinical pathology, lasting one year, available for a limited number of selected students. Department of radiology provides courses for D.M.R. of Conjoint Board.

Institute of Psychiatry (Maudsley and Bethlem Royal Hospitals).—Particulars are given under the heading "Courses in Psychiatry" on page 505.

Institute of Laryngology and Otology (Royal National Throat, Nose, and Ear Hospital).—Comprehensive full-time course lasting eight months held twice a year, beginning in February and September. Part-time advanced revision course lasting 10 to 12 weeks, suitable for students preparing for higher qualifications, held twice yearly.

Institute of Ophthalmology (Moorfields, Westminster, and Central Eye Hospital).—In addition to teaching by attendance on hospital practice, routine lecture and tutorial course lasting four to five months held twice a year, beginning March and October. Revision courses in basic sciences held in April and September.

Institute of Child Health (Hospital for Sick Children, Postgraduate Medical School at Hammersmith, and Queen Elizabeth Hospital for Children, Hackney).—Tuition provided throughout year in three terms beginning January, April, and September.

Institute of Obstetrics and Gynaecology (Queen Charlotte's Maternity Hospital, Chelsea Hospital for Women, and Department of Obstetrics and Gynaecology at Postgraduate Medical School).—Teaching based on ward work, supplemented by lectures and demonstrations during two terms of three months' duration, beginning in March and September. Short intensive courses of a fortnight's duration, held in June and December of each year.

Institute of Neurology (National Hospital for Nervous Diseases and Maida Vale Hospital).—Teaching mainly by attendance on hospital practice, supplemented by lectures and demonstrations. Two whole-time courses in clinical neurology held annually, beginning January and October, and a course in neurosurgery beginning in May. Courses of weekly clinical demonstrations held regularly three times a year.

Institute of Orthopaedics (Royal National Orthopaedic Hospital).—Complete training in orthopaedics to selected graduates already trained in general surgery and basic sciences is afforded by means of clinical appointments covering two to three years, with opportunities for research. For graduates requiring a less extensive period of education in the specialty, and those who have acquired practical experience overseas or elsewhere, a series of advanced courses is held each year, beginning in October.

Institute of Dental Surgery (Eastman Dental Hospital).—Short intensive courses and long courses, extending up to one year, held in various departments. Six-months' course, suitable for final F.D.S. candidates, begins in June and December.

Institute of Cancer Research (Chester Beatty Research Institute and Departments of Physics and Radiotherapy at Royal Cancer Hospital).—The Institute is concerned with all aspects of research into cancer causation and treatment, with the training of research workers in this field, and with advanced teaching in biophysics and radiotherapy.

Institute of Diseases of the Chest (Brompton Hospital and London Chest Hospital).—Students may enrol for one term or more on an approximately half-time course, and arrangements are made for students who intend to specialize in diseases of the chest to attend a whole-time comprehensive course during the two terms beginning in October and January.

Institute of Cardiology (National Heart Hospital).—Five appointments of registrar type offered each year to physicians in training as cardiologists who already have a sound grounding in general medicine. General physicians may enrol for whole- or part-time instruction for one term. Three terms annually, beginning in January, May, and October. Three intensive fortnight courses of lectures and demonstrations held in February, July, and November.

Institute of Dermatology (St. John's Hospital for Diseases of the Skin and the Eastern Hospital).—Clinical teaching in out-patient department of the former hospital and in the wards of the in-patient unit of the latter. Short courses of lectures in summer months and longer and more systematic courses in winter.

Institute of Urology (St. Peter's, St. Paul's, and St. Philip's Hospitals).—Comprehensive instruction in wards, out-patient departments, operating theatres, and laboratories. Full-time clinical clerkships available for ten-week periods beginning January, April, and October. Courses in venereology lasting two months held twice a year in co-operation with members of Medical Society for Study of Venereal Diseases.

Institute of Basic Medical Sciences.—Comprises the departments of anatomy, physiology, and pathology of the Royal College of Surgeons of England. Provides facilities for practical work and instruction in the basic medical sciences. Graduates who envisage a career in one of the basic medical sciences can be accepted for periods of training. Regular three-months courses of demonstrations and lectures, beginning in April and October, are suitable for candidates for higher medical degrees and diplomas.

Those who desire to take the courses offered by these various institutes should make arrangements well in advance. The first consideration in the allotment of vacancies is given to applicants sponsored by their universities, Governments, and other official bodies. Established specialists from overseas who are in this country for a relatively short time and wish to see something of British practice are always welcome. Short postgraduate courses and other forms of continuing education for general practitioners are arranged at hospitals throughout the four metropolitan regions, with the assistance of regional advisers in postgraduate medical education.

Postgraduate Facilities at Oxford

It would be impossible to give a full account of all the postgraduate facilities which are available in the various universities and medical schools. In the last Educational Number we gave a long and detailed account of the facilities at Oxford, where a school of clinical research and postgraduate studies has been in existence since 1936. It has been developed gradually and now consists of the Nuffield Departments in a number of subjects, each with its whole-time professor, assistant, and appropriate research and clinical staff. Certain of the clinical appointments on the staffs of these departments are available for specialist-trainees from Great Britain, the Dominions, and the Colonies. In addition there are a number of trainee appointments in the teaching hospitals and in departments of certain non-teaching hospitals of the Oxford region. Facilities for postgraduate education for general practitioners provide regular contacts with consultants and specialists on the staff of the teaching hospitals at Oxford and the non-teaching hospitals at Reading, Northampton, and Aylesbury. Inquiries should be made of the Postgraduate Medical Education Committee, 11, Keble Road, Oxford, regarding the various sessions of

instruction for general practitioners and other postgraduates by consultants and specialists. Many short courses in special subjects are arranged.

In the United Oxford Hospitals there are ward rounds in medicine on most days of the week; ward rounds also in tuberculosis, surgery, and gynaecology; clinical demonstrations in chest diseases, paediatrics, infectious diseases, psychiatry, geriatrics, neurology, and plastic and orthopaedic surgery; and out-patients in paediatrics, neurology (medical and surgical), venereal and skin diseases, and plastic surgery, and at antenatal and post-natal clinics. The short courses on special subjects include, in October, November, and December of the present year, three conferences, each held weekly in the afternoons, on the following subjects: oto-rhino-laryngology, geriatrics, paediatrics, and neurology. In March, April, May, and June of next year similar conferences are arranged, each of them for an afternoon in three successive weeks, in medicine, gynaecology, surgery, therapeutics, and psychiatry. The places where the clinics, demonstrations, and short courses are held include the Radcliffe Infirmary, the Cowley Road Hospital, the Nuffield Department of Medicine, the Warneford Hospital, the Park Hospital, and the Institute of Social Medicine. A feature of the Oxford programme is what are called "concilia," held in medicine in alternate weeks in full term, and in obstetrics and gynaecology held monthly. Conferences in clinical pathology are also held in alternate weeks in full term.

Other Postgraduate Centres

The postgraduate facilities at Cambridge and at certain other universities are mentioned under other headings. At Liverpool, where postgraduate courses have been well attended, there are courses of 12 months leading to higher degrees in surgery (Ch.M) and orthopaedic surgery (M.Ch.Orth.). A two-year course leads to the diploma in radiodiagnosis or radiotherapy. No Liverpool diploma is offered in anaesthesia, but a 12-months course, limited to 10 students (for whom suitable hospital appointments are found, is designed for those who are reading for the D.A. of the Conjoint Board. During the last session at Liverpool 11 short refresher courses for general practitioners were held, the attendance varying between 12 and 47. The most popular was that in obstetrics, the inference being that many practitioners who until recently did not undertake midwifery are now starting to do so.

At Glasgow University various types of postgraduate instruction are available, in the form both of individual clinical attachments and of organized courses. The Postgraduate Medical Education Committee, representing the University and the Royal Faculty of Physicians and Surgeons of Glasgow, propose to offer during the ensuing session an eight-weeks part-time course of instruction in anatomy, physiology, biochemistry, pathology, and bacteriology. The course is suitable for candidates preparing for the primary examinations of the surgical fellowships, and will provide a total of approximately 160 hours of instruction. This course is organized primarily for the junior staff of hospitals in the Western Region, but it is also open to other applicants. If desired, an honorary part-time clinical attachment can be arranged for members of the course who have no hospital appointment. Short courses in the specialties are arranged from time to time when the demand arises. Training in radio-diagnosis and radiotherapy, recognized for the D.M.R.(D.) and D.M.R.(T.), is available. Refresher courses for general practitioners are held from time to time; these consist for the most part of clinical demonstrations, but include also a few lectures on modern methods of therapy. A short intensive course in chemotherapy, designed primarily for the general practitioner and public health officer, has been arranged for October. The medical school provides annual courses for the D.P.H. and D.I.H. in any year in which there are sufficient applicants. Inquiries should be addressed to Professor G. M. Wishart, Director of Postgraduate Medical Education, University, Glasgow, W.2.

The University of Edinburgh does not offer courses in preparation for higher degrees in medicine and surgery, but courses for the diplomas in public health, tropical medicine and hygiene, radiodiagnosis, radiotherapy, and psychiatry are given. The courses for the D.M.R.(D.) and D.M.R.(T.) now occupy a full-time period of two years' study. The course for the diploma in industrial health has been discontinued.

The Edinburgh Postgraduate Board for Medicine organizes courses in internal medicine, medical sciences, and specialized short refresher courses for general practitioners are also arranged. Application should be made to the Director of Postgraduate Studies, Surgeons' Hall, 18, Nicolson Street, Edinburgh, 8.

Some of the London schools organize postgraduate courses. At Westminster Hospital Medical School courses for the F.R.C.S. for senior officers of the Royal Army Medical College and in dentistry and radiology continue to be held. A major development in the field of research at Westminster has been the setting aside of a large sum by the hospital for the establishment of postgraduate fellowships and grants.

At the London Hospital Medical College the annual postgraduate course in advanced medicine continues to be extremely popular. This begins in January of each year. The one remaining major lack from which the London Hospital as the product of its two components—hospital and medical college—still suffers is a shortage of facilities for clinical research, but steps are now under way to remedy this.

The North London Postgraduate Medical Institute offers courses in advanced medicine and surgery, and obstetrics and gynaecology, and instruction in pathology, anaesthetics, and radiodiagnosis. During the coming academic year there will be eight-week courses in advanced medicine and advanced surgery.

The above in no way pretends to cover the whole field of postgraduate activities, which is more or less coextensive with the universities and teaching institutions.

The Fellowship of Postgraduate Medicine (60, Portland Place, London, W.1) provides a bureau of general information on postgraduate work, and also arranges various courses of instruction to suit the special needs of postgraduates whose requirements are not met by other existing programmes. The arrangements include week-end courses, occupying the whole of a Saturday and Sunday. These are given in various hospitals in such subjects as infectious diseases, general medicine, rheumatic diseases, orthopaedics, obstetrics, plastic surgery, and clinical surgery. Courses are also arranged that are specially suitable for, though not restricted to, candidates for the D.A., D.C.H., D.Obst.R.C.O.G., M.R.C.P., and F.R.C.S. (Final). These include general medicine, general surgery, proctology, midwifery, children's diseases, and anaesthetics. Some are full-time courses and others are spread over longer periods, taking place either in the mornings, afternoons, or evenings, and intended particularly for postgraduates not free for full-time study. The *Postgraduate Medical Journal*, the official organ of the Fellowship, is published monthly and contains a special section devoted to general postgraduate news and information about the work carried on in all the main centres of teaching throughout the British Isles.

COURSES IN PSYCHIATRY

The Institute of Psychiatry, associated with the Maudsley Hospital and Bethlem Royal Hospital, furnishes a full training in psychiatry, normally covering a period of three years after adequate experience elsewhere in general medicine. The aim is to provide a wide training in the various branches of clinical psychiatry and its basic sciences. A postgraduate diploma in psychological medicine has been instituted by the University of London. The course of study for this diploma and for the D.P.M. of the Conjoint Board may be taken either by fee-paying students of the

Institute of Psychiatry or by holders of junior staff medical appointments in the joint hospitals.

Vacancies are available each quarter in the Maudsley Hospital and Bethlem Royal Hospital for registrars and house-officers. The fees payable by those who attend the teaching at the Institute of Psychiatry without holding hospital appointments are, for clinical instruction only, 10 guineas for three months, 15 guineas for six months, and 20 guineas for 12 months; for clinical instruction and all lecture and demonstration courses in the first and second year, 20 guineas for one term and 50 guineas for one year; and for first- or second-year lecture and demonstration courses only, 12 guineas for one term and 30 guineas for one year. The enrolment fee is £1. Full information may be obtained from the Dean, Maudsley Hospital, Denmark Hill, London, S.E.5.

The National Association for Mental Health (39, Queen Anne Street, London W.1) arranges training courses in child psychiatry. Fellowships are given to enable qualified psychiatrists to obtain special training in child guidance at a recognized training clinic, and these are tenable at a number of clinics in Great Britain. The Association also runs a number of other courses, especially for those whose work is among the subnormal and the mentally defective.

The Tavistock Clinic (2/4, Beaumont Street, London, W.1) is an out-patient clinic comprising two departments —an adult department for the treatment of patients with neurotic and personality disorders and a child guidance department for the treatment of maladjusted children and for helping their parents. A number of registrar appointments in both departments provide systematic training in adult psychotherapy. A two-year extramural course for psychiatric registrars and consultants in the principles of psychotherapy and psychopathology, with special reference to the group treatment of adults, is also offered by the Clinic. For general practitioners there is a weekly discussion group on the principles of psychological medicine applied to their own work. There is also elementary and advanced training in the Rorschach method, open to psychiatrists, as well as general courses of training for clinical and educational psychologists, child psychotherapists, social workers, and speech therapists. Full particulars may be obtained from the Training Secretary.

The Institute of Psycho-Analysis (63, New Cavendish Street, London, W.1) furnishes a part-time course, lasting about four years, in psycho-analytic theory and technique. It includes a personal analysis, attendance at lectures and seminars, and clinical work under supervision. The Institute does not set out to teach all aspects of psychiatry, and general psychiatric experience must be obtained at other clinics and hospitals.

Courses in psychiatry are given at the various universities. The University of Leeds grants a diploma in psychological medicine. It involves a part-time course, covering eight academic terms. The secretary of the Postgraduate Department is Mr. T. A. Divine, School of Medicine, Thoresby Place, Leeds, 2.

The course for the diploma in psychological medicine at the University of Durham began last October, and the candidates are due to sit for Part I of the examinations in September of this year. Applications for entry to the new course commencing in October, 1952, are now being received.

At Edinburgh intensive courses lasting five weeks are held in preparation for the diploma in psychiatry examinations in December and April. The course is primarily for those registered as candidates for the diploma of the university, but it is open to others who may be interested to apply for permission to attend.

The Conjoint Board in Ireland has a diploma in psychological medicine (D.P.M. R.C.P.&S.I.), the examination for which consists of two parts. Part I consists of anatomy, physiology and pathology, and psychology (each subject paper and oral), and Part II consists of psychological medicine and psychosomatic medicine and neurology (each subject paper, clinical, and oral).

TRAINING TO BE CONSULTANT OR SPECIALIST

In Great Britain, unlike Canada, South Africa, France, the Netherlands, and the Scandinavian and certain other countries, there are no specific standards which must be reached before a medical man may announce himself as a consultant or specialist. A consultant or specialist may, and usually does, obtain higher qualifications or diplomas in his special field, but his status does not depend so much upon these as upon the recognition of his colleagues. Thus it usually takes many years to build up a consultant or specialist practice. Practitioners recognized as consultants or specialists almost invariably hold hospital appointments.

Not all consultants or specialists work whole-time in their particular field. Many consultants spend part of their time in general practice, and it is often the knowledge and wisdom displayed by the general practitioner which inspires his colleagues to consult him on their difficult cases. Often also in general practice the practitioner becomes interested in a special aspect of medicine, to which he devotes more time and study until he comes to be regarded by his colleagues as a specialist in this field.

The young practitioner who contemplates a specialist career should first seek guidance from a senior consultant in the specialty of his choice, from the dean of his medical school, or from the secretary of the British Postgraduate Medical Federation. After his initial house appointments the trainee specialist competes for promotion to more senior registrar posts, his ultimate aim being appointment to the staff of a hospital or hospitals in either a whole-time or part-time capacity. All posts in specialist practice are advertised in the medical press.

Meanwhile one of his first steps should be to obtain the higher qualifications and diplomas without which he cannot hope to compete for suitable appointments in the hospital or public health services. These may be a doctorate in medicine, membership of the Royal College of Physicians, fellowship of the Royal College of Surgeons, membership of the Royal College of Obstetricians and Gynaecologists, or a degree or diploma in a special branch of medicine offered by a university or a medical corporation. Each of the bodies offering degrees or diplomas in special fields makes its own regulations, including conditions of entry for the examination. The qualifications required of candidates and details of the field of study to be covered vary with the subject and also with the standard of the degree or diploma. Sometimes the body offering the degree or diploma indicates particular hospitals or institutions which it approves for the purpose of hospital experience. Most of the bodies offering the diplomas require the candidate to have had a specific period of professional practice (not necessarily in general practice) since obtaining his primary medical qualification.

The examinations for university degrees and for diplomas in special subjects are written, clinical, and oral. For some higher university degrees the main part of the examination consists of a thesis. It should be added that a diploma in a special subject is not essential to consultant or specialist status. Many consultants and specialists of the highest reputation do not hold diplomas in special subjects. Their academic qualification is the doctorate in medicine. Many deplore the multiplicity of diplomas in special subjects on the ground that it tends to divide into watertight compartments the art and science of medicine. Such a division, if carried too far, encourages the labelling of a patient's illness as a particular disease or a disturbance of a particular organ or part of the body and discourages the care and treatment of the patient as an indivisible whole.

According to an inquiry made by the World Medical Association in 1949 there was a shortage of consultants and specialists in all the broad fields of practice in Great Britain. This was in striking contrast to the position in many other countries. France declared that she had perhaps too many specialists for the population; Italy had an excessive number; Switzerland had too many (in that country 46% of all doctors are specialists); the United

States had enough except in a few special fields; and Belgium, Ireland, the Netherlands, and Spain were adequately served. In Great Britain, until recently, consultant and specialist services have not always been readily available in rural areas, but the regional organization of hospitals under the National Health Service is expected to overcome this difficulty.

The Position in the United States

In the United States, as in this country, there are no standards for consultants and specialists, but there is a growing tendency to accept as specialists only those who are certificated by one of the 16 American boards in the medical specialties. Each board establishes its own standards, subject to the approval of the Advisory Board of Medical Specialties and the Council on Medical Education and Hospitals of the American Medical Association. The stated period of training is five years. No period in general practice, beyond internship, is required before specialist training is undertaken. Certificates or diplomas are granted, after examination, by the board in the specialty concerned. Three schools are specifically designed to provide postgraduate courses, and 71 medical schools offer postgraduate in addition to undergraduate training. Postgraduate courses are also conducted by hospitals and medical societies. A limited number of grants for postgraduate education are made by the Government and by official and private organizations. Most teachers of postgraduate students in the States are part-time, but there is a nucleus of whole-time teachers. The training programme for specialists in the States is generally thought to be adequate, but it has been criticized for its long period of preparation and for requiring only one year of general medical experience before specialization. A large body of opinion maintains that the education of better physicians and specialists would result if they had two or more years' practice before beginning specialty training. There is a shortage of specialists in psychiatry, physical medicine, anaesthesiology, neurosurgery, and one or two other subjects.

The Position in France

The French Medical Association and the Order of Physicians represented by a commission establish standards for specialists in France. The maximum period of training, which is supervised by a university, is six years, after which it is usual to take a doctorate of medicine. No period of general practice is required before starting upon specialist training. No one may call himself a specialist unless he is confirmed as such by the commission. There are no special schools in France for graduate training, but courses are offered by the regular medical schools, and many French graduates go for further training to Great Britain, the United States, Canada, Sweden, and certain South American countries. The only fee payable is the registration fee of 4,000 to 5,000 francs, and the Government and certain private organizations make grants towards students' expenses. The training programme in France is, or was until lately, in a state of transition, and the duration of study for each specialty and the nature of the examinations to be passed are being carefully worked out. As already stated, there is a complaint that France has too many specialists, but decentralization is very effective and specialist service is available to people in the rural areas.

For the above facts we are indebted to an inquiry undertaken by the World Medical Association.

RESEARCH CAREERS

In any survey of medical careers the opportunities offered by the Medical Research Council must on no account be overlooked. The Medical Research Council was set up nearly 40 years ago (as the Medical Research Committee) to administer funds provided annually by Parliament for the promotion of research in medical science. The Council is under the general direction of the Committee of the Privy Council for Medical Research, of which the Lord President is chairman and the Minister responsible to Parliament. Of the 12 members of the Council, appointed by the Committee of the Privy Council for a period of four years, nine are chosen in respect of their scientific qualifications. The other three are lay members, one of whom must be a member of the House of Lords and one a member of the House of Commons. The Council itself selects and appoints its staff. Its administrative headquarters are at 38, Old Queen Street, London, S.W.1, and the scientific staff are housed in more than 40 establishments, mainly in hospitals and universities throughout the country.

The central establishment is the National Institute for Medical Research. This has separate divisions of biochemistry, chemotherapy, bacterial chemistry, physiology and pharmacology, experimental biology, bacteriology and virus research, physical chemistry, biophysics and optics, and biological standards. The interests of the independent research units range from fundamental laboratory studies, such as biophysics, to various aspects of clinical research and of social and industrial medicine.

The scientific staff of the Council numbers over 400, of whom more than one-third are medically qualified. Senior members of the staff are often given the status of honorary physicians of the hospitals in which their units are situated, while members of units accommodated in university departments are in many cases given honorary university appointments and participate to a limited extent in teaching. The research establishments vary widely in size. The largest is the National Institute at Mill Hill, but the average research unit consists of from five to ten scientific workers with a number of technical and clerical assistants.

The Council's salary scales for scientific appointments are based on the principle that opportunity should be provided for careers equivalent to those offered in the universities to men and women of equal ability and experience. Although there is no common scale for all universities, the Council's salary grades correspond approximately with the ranks of professor, reader, senior lecturer, lecturer, and demonstrator. The emoluments of the director of one of the Council's clinical units are equivalent to those of a whole-time professor of medicine with an honorary contract as a consultant in the National Health Service. For the most part salaries are not fixed in relation to particular posts but rather with reference to the qualifications, experience, and responsibilities of the individual.

New appointments to the scientific staff, except in the case of senior posts, are normally made for definite periods or are subject to review at intervals. Subsequently the possibility of the holders taking up permanent careers with the Council is considered, and in suitable cases, when an adequate degree of seniority has been attained, the Council is prepared to continue employment until the normal retiring age of 60, with the possibility of extension to 65. Superannuation provision is made in respect of all appointments of substantial duration.

Public Health Laboratory Service

The Council administers, on behalf of the Ministry of Health, the Public Health Laboratory Service, which was originally set up as an emergency service in 1939 and has since become permanent. There are over 40 separate laboratories in England and Wales. Members of the staff of the Service, whose salary scales are normally equated with those of the National Health Service, undertake in addition to their routine duties research on problems of bacteriology and epidemiology. The Service also maintains a number of special laboratories which act as reference centres for particular infections, and these engage largely in research.

MEDICAL VISITORS FROM OVERSEAS

Empire Medical Advisory Bureau

During recent years the Council of the British Medical Association has set up at Headquarters in Tavistock Square, London, two organizations, the one for welcoming and providing a personal advisory service for practitioners visiting this country from the Dominions and Colonies, and the other for performing a similar function for practitioners from countries outside the British Commonwealth.

The Empire Medical Advisory Bureau invites all medical visitors from Commonwealth countries to get in touch with it, if possible before arrival, and to call at the Bureau as soon as possible after arrival and talk over with the Medical Director (Dr. H. A. Sandiford) any points on which they may need advice or assistance. During its four years of existence 3,386 new inquirers have made use of the services of the Bureau and 1,991 new visitors have paid a total of 4,723 visits.

Detailed information is available at the Bureau on postgraduate education facilities and on the courses of study necessary for higher qualifications. The Bureau is in close touch with the British Postgraduate Medical Federation and other organizations and authorities concerned with postgraduate work, and, when required, the necessary contacts and introductions can be effected. The visitor who wishes to see something of the latest medical and surgical techniques can be put in touch with the appropriate experts.

A register of suitable hotels and lodgings is maintained by the Bureau. Social functions are held at intervals, and practitioners from the Dominions and Colonies are enabled to meet each other and members of the profession in this country. A number of doctors have notified the Bureau of their wish to entertain overseas visitors, usually for weekends, in their homes. General information is afforded by the Bureau concerning rationing, customs duties, facilities for sport and travel, exhibitions, and the like. Visitors are asked to give as long notice as possible of their intended visit and their date of arrival, mode of travel, and period of stay. A letter of introduction from the local honorary secretary of their medical association, whilst not essential, would be welcome and might be useful if references are required when taking furnished flats.

International Medical Visitors Bureau

The International Medical Visitors Bureau is a more recent development, also located at B.M.A. House. Information is obtainable on postgraduate education facilities, visits to hospitals and clinics are arranged, assistance is given in finding accommodation, and general information is afforded on travel and other matters.

The Medical Director of both Bureaux is Dr. H. A. Sandiford, to whom all communications should be addressed.

MEDICAL AUXILIARIES

The committee, under the chairmanship of Mr. Zachary Cope, which was set up by the Minister of Health and Secretary of State for Scotland to consider the supply and demand, training, and qualifications of certain medical auxiliaries employed in the National Health Service, recommended *inter alia* that a statutory body should be established under the aegis of the Privy Council to maintain registers of medical auxiliaries qualified for employment in the National Health Service. Discussions with the bodies concerned are still proceeding, and in the meantime the Board of Registration of Medical Auxiliaries (B.M.A. House, Tavistock Square, W.C.1) will continue to function. It was principally at the instance of the British Medical Association that the Board was formed, having in view the desirability of a national register of trained persons engaged in technical work or practice ancillary to that of the medical profession.

The register includes radiographers, dispensing opticians, chiropodists, speech therapists, orthoptists, dietitians, physiotherapists, and biophysical assistants. The Board, the majority of whose members are members of the medical profession, is a registering and disciplinary, but not an examining, body. Examining bodies in the various branches are approved by the Board and appoint representatives to its council. The Board's function is to co-ordinate the work of the various auxiliaries, to ensure that they are qualified, to maintain and improve their standard of training, and to afford liaison between them and medical practitioners. All the many thousands of persons whose names appear on the register hold a qualification in their branch which is recognized and approved by the Board. All on the register, with the exception of the chiropodists, undertake not to carry out any medical auxiliary work except under the direction and control of a medical practitioner. The chiropodists, while not acting under medical direction, confine their practice to the treatment of malformed nails, superficial excrescences, and the like.

The qualifying bodies for the respective branches are the Society of Radiographers, the Association of Dispensing Opticians, the Society of Chiropodists, the College of Speech Therapists, the British Orthoptic Society, and the British Dietetic Association. All of them impose established periods of training. That for the radiographers, for example, is two years at a recognized training centre; the chiropodists do a two-years' whole-time course at a recognized centre, and the speech therapists a three years' whole-time course.

The Chartered Society of Physiotherapy (Tavistock House North, London, W.C.1) maintains its own national register and approves schools for training and examinations.

THE ARMED FORCES

Army Medical Services

Entry into the Royal Army Medical Corps is, in the first instance, by means of a short-service commission, and subsequently, for male officers, by selection to a regular commission on completion of six months' combined national service and short service. Appointment to a short-service commission is in the rank of lieutenant, with promotion to captain on completion of one year's service. All previous full-pay service as a medical officer counts for promotion. Candidates must be registered under the Medical Acts and normally be under the age of 45.

The period of short-service commissions is eight years, of which any period from two to eight years may be spent on the active list and the remainder on the Regular Army Reserve. Applicants liable under the National Service Acts will not be accepted for less than four years on the active list. Officers are eligible for an antedate up to a maximum of two years for civil experience in the hospital field.

Unmarried applicants with no previous service will receive on appointment to a short-service commission total emoluments of about £757 a year, rising to £867 on promotion to captain. The yearly total is increased after two years as captain to £922, and to £967 and £1,022 after three and four years respectively. Married male officers over 25 also receive marriage allowance of about £137 a year. Short-service officers appointed for four or more years on active list will, after six months' service, if suitable and desirous, be given consideration for specialist training. On completion of active list period of short-service commission, those not taking a regular commission will be eligible for a gratuity of £240 for two years' service, £450 for three years, and £150 a year for each year's completed service over three years.

Regular Commissions

Short-service male officers on completion of six months' total service as medical officers may apply for a regular commission. The active list period of the short-service commission and other service will count towards ultimate

retired pay or service gratuity on appointment to a regular commission, but they are not entitled to any short-service gratuity.

The total yearly emoluments of a regular married officer on promotion to major are £1,323, increased by two yearly increments to £1,487 after six years in major rank. On promotion to lieutenant-colonel the total emoluments are £1,661, increased by two yearly increments to £1,880 after eight years in that rank. The total emoluments of a colonel range from £2,007 to £2,172, whilst brigadiers and major-generals draw total emoluments of £2,272 and £2,737 respectively.

All regular officers between the fourth and tenth year of service are given a five months' course of postgraduate study, followed by a year's course in a subject selected by themselves, provided they have shown aptitude in the postgraduate course or in the previous service, the officer remaining on full pay and the fees for the course being paid by the State. Promotion to major is on completion of eight years' commissioned service, but promotion to higher ranks is by selection and is dependent on vacancies. Retirement is compulsory at from 53 to 60 (rarely compulsorily before 57), according to rank. Rates of retired pay vary from £500 (major) to £1,200 (major-general). In addition, officers eligible for full retired pay qualify for a terminal grant of £1,000. Grant of retired pay to regular officers, retired otherwise than as invalids, is normally conditional upon 20 years' service. Officers who on retirement have not completed enough service to qualify for retired pay receive gratuities of £1,000 on completion of ten years' service, and £150 for each complete year in excess, the maximum total gratuity being £2,350. Pensions (and in some cases gratuities in addition) may be granted to widows, and compassionate allowances to children of officers.

Further details may be obtained from the Under-Secretary of State, War Office, and a personal interview with a representative of the Director-General, A.M.S., is readily available at Lansdowne House (Room 130), Berkeley Square, London, W.1.

Professional Training of Army Medical Officers

Medical officers commissioned into the R.A.M.C. receive postgraduate training at the Royal Army Medical College, Millbank, London, S.W.1. The College has a director of studies and tutorial staff for the teaching of army health, pathology, tropical medicine and entomology, military surgery, army psychiatry, radiology, dermatology, and venereology. Regular R.A.M.C. officers between their eighth and tenth years of service pass through the senior officers' postgraduate course of professional studies, a course lasting about five months. Officers who satisfy the College council that they are suitable may proceed to individual specialist training for one year, undertaken in general at selected teaching schools or hospitals. Courses of 10 weeks' duration for junior officers are also arranged. National service officers attend courses lasting two weeks, with instruction in the basic principles of army health, pathology, etc.

The Department of Army Health at the College, in addition to the teaching of military hygiene, provides facilities for special study in the maintenance and enhancement of the health of the Army. Officers intending to specialize in army health are given the opportunity of taking the D.P.H. during their specialist course and assisted in obtaining their D.T.M.&H. The Department of Pathology provides lectures, demonstrations, and practical classes covering laboratory diagnosis and pathological aspects of general, tropical, and preventive medicine and military surgery; that of tropical medicine provides instruction and clinical demonstrations in that field. The syllabus of the department of military surgery covers both general and regional surgery, and includes the surgery of tropical diseases and the management of surgical conditions peculiar to service both at home and abroad. Lectures and clinical demonstrations in psychiatry and psychopathology and the application of pathological principles to morale, discipline, personnel selection, and other military matters are provided in the Department of Army Psychiatry. A feature of College activities is a winter series of evening lectures by leaders of the profession and men eminent in the realms of art and letters.

The Naval Medical Service

Entry into the Naval Medical Service as an acting surgeon lieutenant is, in the first instance, on a short-service basis for four years. Officers leaving the Service at the end of this engagement receive a gratuity of £600 tax free. Those short-service officers who wish to make the Naval Medical Service their permanent career may apply for transfer to the permanent list. Courses of postgraduate study are arranged not only at naval hospitals but at the more important civil centres of postgraduate instruction.

The rank of acting surgeon lieutenant is borne for one year, and thereupon the rank of surgeon lieutenant is conferred on the officer with such additional seniority, up to a maximum of two years, as can be awarded to him in respect of house appointments and comparable medical experience before entry. Promotion to surgeon lieutenant-commander, the next rank, is granted after eight years' total service, a period which is reduced by any antedate of seniority granted as mentioned above. Further promotion is by selection.

Officers with higher professional degrees or showing proficiency in specialist subjects and employed in specialist posts receive allowances at the rate of 8s. a day for seniors and 5s. a day for other specialists. Various other allowances are payable—lodging allowances in certain circumstances, ration allowances, marriage allowances, travelling expenses on duty, and passages for wives and families to approved appointments abroad.

A naval medical officer is retired compulsorily at from 55 to 60 according to rank. Rates of retired pay vary from £500 for a surgeon lieutenant-commander to £1,200 for a surgeon rear-admiral. In addition a terminal grant of £1,000 is awarded on completion of 20 years' service. The grant of retired pay to officers retiring otherwise than as invalids is normally conditional upon completion of 20 years' service. For invalided officers completion of 10 years' service is necessary. Officers who on retirement or invaliding have not completed sufficient service to qualify for the grant of retired pay are granted gratuities of £1,000 on completion of 10 years' service, with £150 for each complete year of service in excess, the maximum total gratuity being £2,350. Pensions may be granted to widows, and compassionate allowances to the children, of officers dying on either the active or the retired list, and, in addition, a gratuity to the widow of an officer killed in action or dying of wounds received in action. Further information may be obtained from the Medical Department of the Navy, Queen Anne's Mansions, St. James's Park, London, S.W.1. Candidates for temporary engagements in the rank of acting surgeon lieutenants, R.N.V.R., as their compulsory military service must apply to the Central Medical Recruitment Committee, B.M.A. House, Tavistock Square, London, W.C.1.

Medical Branch of the Royal Air Force

Medical officers in the Royal Air Force serve at three main types of station—flying, training, and maintenance—and also at hospitals and other medical units. Most of the training establishments offer opportunities in industrial health. The station medical officer is responsible for the medical care of the station and supervises hygiene and sanitation. He also undertakes the medical indoctrination of air crews, the further training of the medical staff, and the general medical administration. Service families may elect to go on his list as N.H.S. patients.

Service hospitals provide a full range of facilities for both in-patient and out-patient diagnosis and treatment. Fully equipped rehabilitation units also exist, and there are certain specialized medical units—namely, the Central Medical Establishment, with a panel of consultants and facilities for boards and specialist medical examinations, the R.A.F. Institute of Pathology and Tropical Medicine, and the R.A.F. Institute of Aviation Medicine. A number of

medical officers are employed on flying duties in connexion with research or the medical care of air crews; others are specially trained in the medical problems associated with modern aircraft flying. The length of an overseas tour is two and a half years, except for Iraq and Aden, where it is two years. A permanent officer may expect to spend about one-third of his service overseas.

Officers in the R.A.F. who are selected for specialist training are given every help and opportunity to gain higher qualifications. A year's study leave on full pay and allowances is available both to specialists and to administrators. The latter normally take the D.P.H., D.I.H., or D.T.M.&H. Some, however, take a clinical diploma and subsequently combine administration with clinical work.

Further information can be sought from the Director-General of Medical Services, Air Ministry, Kingsway, London, W.C.2.

MEDICAL ILLUSTRATION

A course of medical illustration extending over three years and leading to a certificate is given in the University of Edinburgh. The course is suited for those considering medical illustration as a profession. Full training is given in half-tone and line work, and instruction in anatomy suitable for art students. During the third year certain time is spent in the operating theatre, under supervision, and in the preparation of drawings from operation notes. The first students to complete the course received their certificates in July, 1951.

Medical Teaching Films

The two most recent catalogues published on medical films appear to be the catalogue of the films in the B.M.A. film library published in January, 1952, and the Scientific Film Association's catalogue of medical films, a revised edition of the catalogue published in 1948 for the Royal Society of Medicine and the Scientific Film Association.

The British Medical Association has embarked upon the compilation of a comprehensive library and catalogue of medical films and filmstrips. Films may be borrowed from the library at moderate charges. The library is constantly being expanded and improved in quality. There is a film theatre at B.M.A. House.

Medical Museums

The Wellcome Historical Medical Museum at 28, Beaumont Square, London, W.1, has a collection which covers all aspects of the history of medicine and certain allied sciences from the earliest times. The prehistory, classical, and eighteenth and nineteenth century collections are especially important. Exhibitions of material from the collections are constantly held. An exhibition recently opened deals with the medicine of the aboriginal peoples in the British Commonwealth. Catalogues of the various exhibitions are published by the Oxford University Press. Students working on special branches of historical research may obtain permission to study individual items in the collections on application to the Director.

The Wellcome Museum of Medical Science is housed at 183–193, Euston Road, London, N.W.1. It consists of descriptions of diseases under the following headings: general, aetiology, epidemiology, pathology, clinical, diagnosis, treatment, prognosis, and prevention. The teaching standard aimed at is postgraduate, but the museum is equally useful to medical undergraduates. The museum is open on weekdays without fee or formality, to all medical graduates and students, nurses, and workers in medical sciences.

At the same premises is the Wellcome Historical Medical Library, containing about 200,000 books and journals concerning the history of medicine and the allied sciences, some 5,000 MSS., and 100,000 autograph letters of medical and scientific interest.

MEDICAL DEFENCE

The young practitioner immediately on registration is advised to join a defence society. This is just as wise a precaution now, under the National Health Service, as it was in former years. However careful a practitioner may be, he is never immune from the chance or accident which may involve him in litigation or the threat of it.

The Medical Defence Union (Tavistock House South, Tavistock Square, London, W.C.1) has a membership of over 36,000. Membership is open to medical and dental practitioners, and special provision exists for the protection of overseas practitioners practising in any part of the world with the exception of America. Its work has been increasing by leaps and bounds during the past three years. It provides advice and financial indemnity for any member threatened with or involved in litigation raising a question of professional significance or, more commonly, based upon a charge of professional negligence. The accumulated funds are £170,000 and the subscription income is mounting annually, though costs of litigation and settlements out of court are mounting even more rapidly. Since its foundation the Union has spent over £450,000 on damages and costs incurred in protecting members.

The Medical Protection Society (Victory House, Leicester Square, London, W.C.2) has a membership of over 28,000. Membership is open to registered medical and dental practitioners, including those practitioners who will be provisionally registered under the provisions of the Medical Act, 1950. There are special provisions for members practising overseas, and also for practitioners who visit the United Kingdom for postgraduate work. Members are afforded advice and assistance in all matters of professional difficulty, with unlimited indemnity against legal expenses incurred in defending and conducting cases on their behalf, and also against costs and damages in those cases in which adverse verdicts result. This indemnity is secured by financial resources exceeding £150,000 and a reinsurance with Lloyd's underwriters. From year to year the work of the Society increases steadily and larger amounts of costs and damages are paid on behalf of members.

The Medical and Dental Defence Union of Scotland (113, St. Vincent Street, Glasgow, C.2) has a membership of 7,300 throughout Scotland, England, and Northern Ireland. With the summer influx of new graduates, however, it is expected that at the time of the annual balance the membership will be in the region of 7,500. The total assets are about £40,000. The policy of the council has always been to give careful consideration to the interests of its members who have claims made against them for negligence and to advise when requested regarding any business, legal, and professional matters arising from their practice.

DIPLOMAS IN PUBLIC HEALTH AND TROPICAL MEDICINE

Diplomas in Sanitary Science, Public Health, and State Medicine are registrable as additional qualifications. Most of the universities offer a full-time course in public health, lasting for nine months and beginning in October. Last year examinations were held for these diplomas in the Universities of Liverpool, London, Wales, Aberdeen, Edinburgh, and Glasgow, the Queen's University, Belfast, the National University of Ireland, and the English Conjoint Board. There were 134 passes and 25 rejections. At Durham it has now been decided to begin a part-time course for the Certificate and the Diploma in Public Health in the medical school in October, 1952, provided there are enough candidates. The regulations for the award of the certificate and diploma are at present being amended to the effect that the course for the C.P.H. shall extend over two academic terms of part-time study and the course for the D.P.H. over three terms. The examinations will be held in March and June. It has been decided at Durham to

discontinue the B.Hy., but the regulations for the D.Hy. are being amended so as to enable graduates of the university in medicine and surgery of six years' standing to be admitted to the doctorate. Under previous regulations only Bachelors of Hygiene of the university could be so admitted.

At Leeds a part-time course for the D.P.H. is provided by the university and lasts five academic terms, covering a period of 18 calendar months, so that those wishing to enter upon a career in public health, industrial medicine, or medical administration can pursue their studies and at the same time undertake some remunerative professional work in public health or other fields. The university itself does not arrange this part-time employment, and intending students wishing to do public health work should apply to the medical officers of health of the cities of Leeds, Bradford, York, or Wakefield, or of the county boroughs of Barnsley, Dewsbury, or Doncaster, or of the West Riding County.

In the Welsh National School of Medicine the postgraduate courses include the C.P.H., D.P.H., and T.D.D.(Wales). The demand for the last-named and for the special short course in chest diseases is as great as ever. The Royal Army Medical College, Millbank, London, is a recognized teaching institute for the D.P.H. and the D.T.H.

London School of Hygiene and Tropical Medicine

The work of this school is organized in 10 main departments: applied physiology, bacteriology and immunology, biochemistry, clinical tropical medicine, entomology, human nutrition, medical statistics and epidemiology, parasitology, public health, and the Ross Institute of Tropical Hygiene. The course for the University of London's Postgraduate Certificate and Diploma in Public Health, designed primarily for medical practitioners who intend to enter the public health service in Great Britain, commences at about the beginning of October each year and lasts for nine months, the examination for the certificate being held at the end of the first three months. In addition to the subjects covered by the D.P.H. syllabus the students are entitled to choose for special study one of the following: industrial health, tropical hygiene, institutional administration, medical statistics and epidemiology, and local government. The industrial health lectures and practical work are recognized both by the Conjoint Board and by the Society of Apothecaries as fulfilling in part the requirements for entry to the Diploma in Industrial Health examination. Students who intend to enter for this examination are, however, required to make their own arrangements for attending clinics in accident surgery, dermatology, and ophthalmology. There are now very few, if any, vacancies for the D.P.H. course beginning this autumn.

The course for the University of London's postgraduate Diploma in Bacteriology provides advanced instruction for graduates in medicine and veterinary science who intend to follow a career in bacteriology. The course commences at approximately the beginning of October each year and lasts for nine months. Applications must be received not later than the preceding March. The number of places is strictly limited, and there are now no vacancies for the forthcoming course.

The course for the Conjoint Board's Diploma in Tropical Medicine and Hygiene, a continuous one of five months' duration, is open to qualified medical practitioners and is held twice a year, commencing at about the beginning of October and the beginning of March. The course for the University of London's postgraduate C. and D.T.M.&H. starts at about the beginning of October each year. Both the preliminary and final course extend over a period of not less than four months' study. Candidates for the final part of the course, who must have had at least 12 months' experience of medical practice in a tropical country, are required to specialize in one of the following elective subjects: clinical tropical medicine, medical biology in relation to tropical medicine, or tropical hygiene.

During the session 1950–1 55 students of the school obtained the Certificate and 43 the Diploma in Public Health of the University of London, 72 the D.T.M.&H. (Eng.), and 12 the Dip.Bact. (University of London).

Liverpool School of Tropical Medicine

Men and women students of any nationality, who hold a medical qualification approved by the university, are admitted to the examination for the D.T.M.&H. at the Liverpool School of Tropical Medicine. Two courses of instruction, each lasting about five months, are given for this diploma. The examination for the diploma is held twice yearly, in January or February and April or May. The fees for the courses of instruction are 40 guineas for the D.T.M.&H. course and 20 guineas for the revision course. The school also gives courses of instruction in public health, parasitology, and entomology for students taking the D.P.H., and courses of instruction in veterinary parasitology and entomology for students taking the M.R.C.V.S. diploma and the B.V.Sc. degree.

Edinburgh University has courses for the D.T.M.&H.Ed., lasting two terms, beginning in October. Diplomas in Industrial Health are granted by a number of bodies, including the Royal Faculty of Glasgow and the Scottish Conjoint Board, and full-time postgraduate courses are arranged at certain universities.

Royal Institute of Public Health and Hygiene

The Royal Institute of Public Health and Hygiene furnishes courses of instruction for the C.P.H., beginning in March and October, and for the D.P.H., beginning in January and August. It also furnishes courses for the Diploma in Industrial Health, the course for Part I of which is the same as, and runs concurrently with, the course for the Certificate in Public Health. For the certificate in public health, lectures are given by specialists on the various sociological aspects, and in the D.P.H. the practical work is carried out at a county borough. The D.I.H. course entails visits to all types of factories and to coal mines.

PROFESSIONAL SOCIETIES

British Medical Association

The British Medical Association was founded in 1832 to promote the medical and allied sciences and to maintain the honour and interests of the medical profession. This is not the place to give even in the most compressed form the record of the Association in medico-political action or its achievements in public health, medical ethics, and other fields. Its membership covers about 85% of the working profession in this country. Members are elected by the Council of the Branch for the area in which they reside, or, if they are serving with the Forces or for other reasons are non-resident in a Branch area, they are elected by the Central Council. Newly qualified practitioners are admitted as members at a lower subscription until the end of their fourth year after registration.

The Association is governed by its Representative Body, which is composed of representatives from all the Divisions. The Council is the Association's executive, and its method of election has been recently revised so as to ensure as equal a representation as possible of all geographical areas, also representation of the medical branches of the fighting Services and of the Public Health Service, and of Branches of the Association overseas, as well as to afford opportunity for the election of a certain number of members on a national basis.

The privileges of members of the Association include participation in all activities, local or central, of its democratic organization; the weekly receipt of the *British Medical Journal* and its *Supplement*; the use of the Association's library at Tavistock Square and of the houses of the Association in Great Britain and in the areas of several overseas Branches; and the help of a highly skilled and experienced staff at headquarters in the many difficulties and problems which arise in the experience of a practitioner. Four years

ago a Medical Practices Advisory Committee was set up as a department of the Association in charge of one of the Assistant Secretaries. The function of this Bureau is to maintain an information service about openings in the various fields of medical practice; to introduce partners, assistants, and locumtenents; and to advise on all individual and personal problems associated with entry into and conduct of medical practice. Inquiries should be addressed to the medical director of the Bureau either at the head office of the Association in Tavistock Square, London, W.C.1, or at the branch offices at 33, Cross Street, Manchester, 2, and 7, Drumsheugh Gardens, Edinburgh.

The principal work of the Association is done through a large number of standing and special committees. Two of these are what are known as autonomous bodies within their own field, but they are nevertheless Association committees and report to the Council. One of them is the General Medical Services Committee, representing those engaged in general practice within the National Health Service. It is the executive of the Conference of Local Medical Committees, the bodies representing practitioners in each area and recognized as such by the Minister under the Act. It was this committee which carried out the immense work leading to the arbitration and the Danckwerts award, and certain of its members formed part of the Working Party on the distribution scheme. The other autonomous body is the Central Consultants and Specialists Committee, which deals with all matters affecting those engaged in consulting and specialist practice. Its representatives, together with representatives of the Royal Colleges, form the Joint Committee.

Other Association committees are concerned with public health, occupational health, private practice, medical ethics, and medical charities. One committee is working out an amended structure of the National Health Service Act, and has presented an interim report. A public relations service is maintained which seeks to ensure that matters affecting the profession are properly presented in the Press. In the field of science the Association offers a number of annual prizes and research scholarships. It also publishes many special journals and, in addition, from time to time, valuable reports of special committees dealing with subjects of medical, medico-legal, and medico-sociological interest.

Society of Medical Officers of Health

The Society of Medical Officers of Health (Tavistock House South, Tavistock Square, London, W.C.1) is a body of medical officers engaged in public health work in all its branches. It publishes an official organ, entitled *Public Health*. There is reciprocal representation on the Association's Public Health Committee and the Society's Council, and the Public Health Committee acts in conformity with an agreement with the Society of Medical Officers of Health under which medico-political activities in this field are undertaken by the Association.

Medical Women's Federation

The Medical Women's Federation (Tavistock House North, Tavistock Square, London, W.C.1) also works closely with the Association, and is represented as such by the one woman member on the General Medical Services Committee. The Federation is the only professional organization consisting solely of medical women, and is thus in a position to represent the interests of women doctors and to deal with problems affecting them as a minority in the profession. It also considers and investigates medical matters of special concern to women doctors. The Federation has active local associations all over the kingdom, including a large London association, and an association of its overseas members. These associations meet regularly, and the *Journal* of the Federation is published quarterly for private circulation among its members.

In addition to the bodies named above there are the defence societies, which are the subject of a separate annotation (page 510), the medical benevolent societies (Royal Medical Benevolent Fund and Epsom College), and the numerous societies headed by the Royal Society of Medicine and the Medical Society of London whose province it is, mainly by papers and discussions and publications, to advance and record the science and art of medicine.

In the students' field the British Medical Students' Association (B.M.A. House, Tavistock Square, London, W.C.1), a lively and enterprising body that publishes a quarterly journal, holds an extended annual meeting, and organizes clinical conferences, should be mentioned.

Preparations and Appliances

LIGHT-WEIGHT VAGINAL RETRACTOR

Dr. K. VERNON BAILEY, Consultant Gynaecologist, St. Mary's Hospitals for Women and Children, Manchester, writes: I have always regarded the heavily weighted Auvard retractor as used for vaginal operations as an instrument to be avoided if possible. A retractor of this type exerts its effect by the heavy drag of its weight on the perineum in combination with its relatively large and wide blade. I have often noticed the severe bruising of the perineal region which follows its use in such operations as colporrhaphy or vaginal hysterectomy, and, incidentally, when used in these operations its very weight causes it to fall out altogether when the perineum is deficient or a marked rectocele is present. I have also considered the curved Sims type of retractor to be inadequate for these cases, as the shape is not conducive to stability during the operation and the upcurve of the blade interferes with the natural fall of the lateral vaginal walls.

Some two years ago, therefore, I got Messrs. Chas. F. Thackray Ltd. to make a modified light-weight vaginal retractor (see illustration) which I have used ever since with complete satisfaction. The blade is 3 in. (7.6 cm.) long and 1½ in. (3.8 cm.) wide at its proximal end, tapering to 1¼ in. (3.5 cm.) wide, with a slight upward concavity at its distal end. The handle ends in a small knob, and is 7 in. (17.8 cm.) long. The weight is flattened antero-posteriorly and is minimal to the requirements of stability when the retractor is in position. Owing to its light weight there is no undue drag on the tissues of the perineum or vaginal walls, and consequently colporrhaphy can be carried out more satisfactorily on tissues not unduly stretched. Any tendency for this retractor to fall out during operation can be overcome by the use of a towel clip which includes the perineal sheet and the neck of the instrument just above the weight. The flat nature of the weight allows this retractor to fit closely to the perineum.

I feel that experienced gynaecologists who prefer to traumatize the tissues as little as possible might be interested enough to give this retractor a trial.

Correspondence

Because of the present high cost of producing the Journal, and the great pressure on our space, correspondents are asked to keep their letters short.

The Perennial Peptic Ulcer Palaver

SIR,—In the *Journal* of August 9 you published two more contributions to the above topic, one on the surgery of peptic ulceration, by Sir Heneage Ogilvie, and the other on massive bleeding from peptic ulcer, by Dr. A. G. Ogilvie, supported by his surgical co-operators. I am happy to count both authors as friends and have the highest admiration for their professional ability, but yet, having carefully read their articles, I feel inclined to take each of them apart and whisper to him in language which, if his surname rightly indicates his origin, he will readily understand, "Hoots, toots!"

To Sir Heneage I should probably proceed somewhat as follows: "I congratulate you most sincerely on the really excellent results you are getting from gastrectomy in these ulcer cases, and—as one who has long advocated (in vain) early operation in duodenal ulcer—I am delighted to see that you aim at reducing the elective age to 40, but why linger shivering on the brink—why not make it 40 *now*? Above all, do not stay modestly in the wings, as you put it, until your cue comes in the form of a catastrophe. It is the part of wisdom to prevent catastrophes, not merely to cope with them.

"It is particularly gratifying, if I may say so, to find a distinguished Guy's surgeon like yourself going all out for operation when it was two eminent physicians from your hospital (Hurst and Ryle) who were largely responsible for the swing back towards the so-called medical treatment of ulcer nearly a generation ago. Indeed, I remember Hurst, at a public discussion, paying me the compliment of saying that 'the worst thing that had ever happened to British gastro-enterology was the fact that I had had a successful operation for duodenal ulcer,' or words to that effect. But are you not rather hard on poor old gastro-jejunostomy? You admit that the operation has in its time done much for surgery, but that it now stands condemned, and you compare it to the fallen Caesar with 'none so poor to do him reverence.' Well, I must be even poorer than I have long felt myself to be, for I am inclined to say as grace at every meal-time, 'Thank God (and the shade of James Sherren) for my good gastro-jejunostomy—Amen.' I would remind you also that Caesar did not die a natural death. He was murdered, but not, so far as I have read, by a gang of abdominal surgeons.

"You allege that *over half* the patients short-circuited are found after a few years to have had some ulceration at the stoma and that in *all* the pre-operative acidity has risen to its old level *or higher* by the end of the year. Come, come, my dear Ogilvie, this really will not do. Have you never read the published statistics of thousands of cases by the late James Sherren or those of Sir James Walton? If not, please do, and you will find that they got almost as good results by the old operation as you are getting by gastrectomy.

"In your view, the modern operation of gastro-jejunostomy has become a 'standardized masterpiece' which all surgeons now perform in the same way. Well, if what you say of the results is true, something must have gone badly wrong with the standard. I used to say when I was in practice that there were not half a dozen surgeons in London whom I would trust to do a gastro-jejunostomy on a patient of mine, but now they seem to have reached vanishing point. Why not take an afternoon off and cross the river from the Borough to Whitechapel, where you may find some tradition lingering of the way in which the operation was done by the old masters? But perhaps you would not. I have so lost touch with what is going on at the London Hospital in recent years that there is no knowing what mischief the surgeons may be up to now.

"I was very glad to hear that you and your friends find that the patients on whom you operate are 'a happy crowd' and are never tired of saying so. Did I ever tell you that, about the time when you were in your surgical swaddling-clothes, John Buchan proposed, in jest of course, that a 'Gastro-jejunostomy Club' should be established, membership to be confined to those who had undergone the operation (of whom he was one), because, he said, 'All the men who had had the operation were such nice and intelligent fellows (here of course I agreed with him) and would make such a happy fraternity'? Would it have been so happy if 20% of the number had marginal ulceration?

"Meanwhile, if you really feel unable to get good results from gastro-jejunostomy (and here I think you wrong yourself), by all means go on with your gastrectomies, and good luck to you and your patients."

Turning to my friend and pupil, the medical Ogilvie, I would say something like this: "Your success in the treatment of haemorrhage from peptic ulcer is most impressive, although an octogenarian like myself cannot help doubting the kindness of dragging back a man of 80 into this weary world when he had almost escaped from it even though you did have him 'perambulating the ward' three days after operation. But why all this fuss and pother? Cannot you—I think I have taken up this point with you before—persuade your surgical colleagues to operate *before* haemorrhage has occurred? I cannot believe that the Newcastle practitioners are unable to diagnose ulcer, and still less credible is it that the ordinary Tynesider is unwilling to obtain early advice for indigestion, seeing that it is free. No, I fear the fault is higher up in the staff of the Newcastle Infirmary, who evidently still cherish the delusion that there is a medical *cure* for ulcer. *Do* persuade your colleagues to read your surgical namesake's article and to *act upon it*. I admit that this will rob you of the fun and excitement of snatching your haemorrhagic patients from the very jaws of death, which you do almost too successfully; but I know you well enough to be sure that you will not mind this if it is for the benefit of the sick. In any case you can always specialize in the treatment of the 'dumping syndrome,' and that should keep you pretty busy."

And now, Sir, if you can spare me the space, a word or two to the general reader on the aetiology of peptic ulcer. I am glad to see that it is at last frankly recognized that about this we know really nothing. Sir Heneage Ogilvie believes that gastric ulcer is commoner in a certain type of stomach and in the "underprivileged" and underfed, but that it may also occur in the "overfed gourmet." Well, "underprivileged" is a political euphemism for the incompetent, lazy, and parasitic members of the community, and I fear therefore that in a Welfare State gastric ulcer is likely to become commoner, as indeed it seems to be doing, but, on the other hand, the "overfed gourmet" must now be a very rare bird indeed.

For my own part I do not believe that diet plays much part in the causation of ulcers at all. During the 30 years when I suffered from a duodenal ulcer I would sometimes get tired of diet rules during an attack and resolve to have a real "blow-out" and damn the consequences. I might then go to a City dinner (and they *were* dinners in those days) and eat my way through the whole menu and sample all the wines. I often found that next day I had lost all pains and that they stayed away for months. The explanation? I'm not sure, but it *may* have been the setting up of a gastritis (partly alcoholic if you insist) which lowered for a time the gastric acidity. Sir Heneage refers rather contemptuously to the "poor fish" who cannot obey dietetic and other rules. I, on the contrary, sympathize with him. Even the poorest "fish" may find a fish diet rather cannibalistic and demand to know why, in order to live, he should abandon all that makes life tolerable. If he is the physician's "headache" (abominable term) the former can always hand him over to the surgeon, and it would be kinder if Sir Heneage would take the poor "fish" by the fin and invite him to join his happy band of the gastrectomized. I should agree, however, that there is a type of constitution, which Sir Heneage so well describes, which predisposes to *duodenal* ulceration and which I believe can be inherited. So far, I think, there is general agreement. But when people talk of "overwork," the "strain of modern life," and so on as exciting factors, I am inclined to be sceptical. The great majority of people in these islands, as a matter of fact, work far less hard now than they did a generation ago. Even the stockbroker, to whom Sir Heneage refers sympathetically, went to work on Saturday down to the end of the first war. Now he spends it on the golf links, though I admit that such an occupation may be more irritating and tiring than sitting on a stool in Throgmorton Street. I can assure Sir Heneage, in short, that his predecessors filled Kipling's "unforgiving minute" with just as great a "distance run" as the present generation, except, of course, when they are performing at Helsinki.

There is one *exciting* cause of an "attack" of ulcer, however, to which I do not think enough importance is attached, and that is cold. I used always to expect a recurrence when north-east winds were prevalent (in October and March particularly), and have often known an attack cease immediately when the wind had gone into the west. Dr. Flindt might note this.

Then there is the latest scapegoat, "oversmoking," which Sir Heneage seems convinced is a cause of duodenal ulcer. For myself, I have an open mind about it. I only know that in my own case I developed my ulcer at 18 and did not start smoking till 21, but that of course proves nothing. Anyhow, we shall soon know, for, seeing that women now smoke about as much as men, the present male predominance in duodenal ulcer should shortly disappear if tobacco has anything to do with it.

When we come to alleged "psychological" causes I am still more incredulous. "Frustration," for example, is no new experience, but is now used as an "alibi" (another horrible modernism) for the man who either aims at what is beyond him, or is too bad a marksman to hit the target anyhow. As Browning said, "A man's reach should exceed his grasp," and what is that but frustration? The fact, of course, is that human life has always been an anxious, laborious, "frustrating" business. As that wise philosopher "Sairey Gamp" remarked, "We was born in a wale and must take the consekences of sich a sitiwation," and among these, I suspect, is a proneness to peptic ulceration.—I am, etc.,

Streatley, Berks. ROBERT HUTCHISON.

Peptic Ulceration

SIR,—I would like to thank Sir Heneage Ogilvie for his most interesting paper on the surgery of peptic ulceration (August 9, p. 299). But is he not at fault in saying the stomach produces an alkaline secretion? On page 301 he says: "Gastric digestion is brought to a close . . . by the shutting down of acid secretion and the neutralization of any free acid that remains by *the alkaline gastric secretion*" (my italics). His theory on short-circuiting operations is dependent on this fact. Surely the saliva ensures an alkaline stomach-content, which is gradually turned acid by the secretion of HCl, and only when the total content is *acid* does the sphincter relax. Medical treatment by alkalis aims at neutralizing excess of acid only.—I am, etc.,

Currie, Midlothian. H. MAITLAND MOIR.

Anaesthetic Explosions

SIR,—I have read with considerable interest the article by Dr. C. F. Hadfield on anaesthetic explosions (August 9, p. 332).

This is a matter in which the Medical Defence Union and the Association of Anaesthetists are materially interested at the present time, as well as the Ministry of Health, the Home Office, and the manufacturers of anaesthetic apparatus. Indeed, certain proposals have been submitted already to senior anaesthetists at certain hospitals that steps be taken to modify the apparatus employed for the administration of anaesthetics, to re-lay the floor of a theatre, and to embark on other procedures calculated to obviate the disastrous results that have followed the discharge of static electricity in the presence of an explosive anaesthetic mixture.

The article by Dr. Hadfield covers a wide variety of causes for anaesthetic explosions, and it seems clear to those who are concerned in dealing with these explosions subsequently in a medical or in a legal sense that they call for a further and fuller investigation than has been given to them in the past.

The hope has been expressed that the Medical Research Council might examine this procedure and publish a report, but, whether or not that eventuates, I think it only proper to warn anaesthetists that the problem is not easy to solve, and that certain suggestions that are being mooted at present may be wholly beside the mark. So satisfied are we of the need to take action that the appropriate committee of the Medical Defence Union will be considering at a forthcoming meeting a proposal to establish a representative working committee which will include anaesthetists, physicists, manufacturers, and electrical technicians, to examine and report on the causation of anaesthetic explosions. It is hoped that some genuine practical recommendations will emerge which will lead to the protection of both patient and practitioner from the unfortunate results that can ensue from the ignition of an explosive mixture during its administration for surgical operations.—I am, etc.,

London, W.C.1. ROBERT FORBES,
Secretary, Medical Defence Union.

Hazards of Static Electricity

SIR,—The article on "Apparatus for Demonstrating Hazards of Static Electricity in Operating Theatres" by Mr. K. C. Magee and Dr. A. Bracken (August 9, p. 321) prompts me to remind my fellow anaesthetists that the mere lifting of a patient on a stretcher with insulated handles will so diminish his electrical capacity to the metal trolley that the voltage he may have acquired will be increased in inverse proportion according to the equation $Q=CV$ where Q=quantity of electricity stored, C=capacity, V=voltage.

Assuming the patient is insulated from the metal top of the trolley by lacquer or varnish which is 0.5 mm. thick, then lifting him 10 inches (25 cm.) will increase his potential some 500 times. If he has acquired a charge of 5 volts, this would increase to 2,500 volts, just about enough to ignite cyclopropane. We have here an example of the connexion between static electricity (usually associated in our minds with high voltage and friction) and low voltages with which we are better acquainted.

It is suggested that the top of the trolleys should not be insulated by varnish or lacquer and that the patient be in electrical contact with it before lifting; also that the handles of the stretchers should be of conducting material and the bearers should not wear non-conducting rubber boots. The most readily ignitable mixture is not necessarily that which is most explosive, and the most readily ignitable mixture by a spark is not that which is most readily ignitable by a flame or a hot surface or other means of ignition.—I am, etc.,

Birkdale, Lancs. N. S. WALLS.

Advertisements in the Postbag

SIR,—This may seem to you and your readers a very foolish letter, but, in all sincerity, I think I represent quite a large section of my medical brethren. The point is that my daily postbag is filled up to 80% of its total content with voluminous advertisements from the various firms that manufacture drugs—most of them accompanied by a piece of blotting-paper, which I find most useful for cleaning my pipes. I have taken the trouble to chart these advertisements, and of one remedy alone seven different drug-houses present their own preparation—seven different names all for the same basic article, and all assuring us that their particular brand is eminently superior to all the others. What a waste of labour, time, and paper. Is there still a paper shortage or not? This Niagara of paper falling on to our breakfast-tables is really quite useless.

A young qualified friend of mine said, "But that is how I keep abreast of modern medical developments." My answer was, "My young friend, surely you can do that better through the medium of the medical press than by reading, and possibly believing, these inflated and unreliable advertisements?"

And medicine alone is not to blame for paper wastage; for over 20 years an optimistic firm of outside brokers has inundated me weekly with three pages of typescript showing me how to make a fortune. I have never answered them, but still they pour in. Do all my professional brothers suffer likewise? Perhaps if I had contacted them I would be a millionaire, and the urge to write this letter would never have arisen—but I doubt it.

I would like an answer to two questions: (1) Are all firms allowed an unlimited supply of paper for advertising purposes? (2) Can it be stated as a fact that the firm that spends most money on advertisement reaps the greatest financial reward?—I am, etc.,

London, S.W.1. DESMOND MACMANUS.

Educating the Public about Cancer

SIR,—I have only just read Dr. McKinnon's letter (July 19, p. 158). I had already read his reprints with great interest, and it would appear that he believes that there are two types of cancer : (1) that which metastasizes and is incurable ; (2) that which does not give rise to metastases and can be cured by local treatment of the primary growth. He argues therefore that there is no value in early diagnosis. Since studying his reprints I have published an article in *Public Health* (1952, **65**, 169) which, I maintain, refutes Dr. McKinnon's theories. This article is based largely on some figures given in Professor Smithers's report on breast cancer in the *British Journal of Radiology*, Supplement No. 4 (1952), which show a definite correlation between the delay in diagnosis and the "five year survival rate." When the delay is less than six months the survival rate is 43%, when it is between six and twelve months the survival rate falls to 28%.

Nobody doubts that the prognosis depends on other factors in addition to the delay in diagnosis, and the most important of these, as Professor Smithers points out, is the type of growth. Dr. McKinnon bases his proof on "the lack of any variation in the trends of mortality rates in spite of the varied experience of the last 20–25 years considered in conjunction with the evidence from other fields." I contend that such evidence is valueless unless the variations in the *incidence* of cancer are also known for the same period. It is obvious that if the incidence has risen, the fact that the mortality rate has remained the same would show that the diagnosis and treatment of the disease have improved. Once more I plead for a properly controlled experiment.—I am, etc.,

London, W.1. MALCOLM DONALDSON.

Treatment of Coronary Thrombosis

SIR,—Since 1949, when one of us[1] reported on the good results of conservative treatment in a small series of slight and moderate cases of cardiac infarction in general practice, we have been investigating the need for anticoagulants in this disease. The result of treatment on 200 patients, published last year[2] and not referred to in your leading article (August 16, p. 378), bears out your statement that it is "difficult to justify the routine use (of anticoagulants) in all cases of coronary thrombosis." The recent paper by Russek and Zohman,[3] to which reference is made, confirms on a larger scale our results. Their criteria of grouping patients into "bad risk" and "good risk" cases is based on the same principle as our division into slight, moderate, and severe ones. In fact, our mortality figures among 108 slight and moderate cases (for example, in patients in whom intractable pain, severe shock, cardiac enlargement, gallop rhythm, and heart failure were absent) was 2%, while theirs among 489 good risk cases also treated on conservative lines was 3%.

Slight cardiac infarction constitutes one-third of all cases ; it is easily recognized not only clinically but by its electrocardiographic pattern of limited subepicardial infarction.[4] As this very rarely progresses into transmural infarction, anticoagulant treatment is not required. Posterior subendocardial infarction is an exception ; here the clinical symptoms are slight at the beginning, but successively become severe until posterior transmural infarction develops.[5] Gradually worsening angina is the leading clinical symptom in these and other cases of impending infarction ; the doubtful resting electrocardiogram may be converted temporarily under effort into one with infarction pattern. Anticoagulant treatment is here a necessity, for it may prevent or lessen infarction.[6]

Concerning severe cardiac infarction (for example, patients with prolonged circulatory shock), we emphasized the great reduction of mortality in our "treated" series in our paper,[2] which evidently escaped Gilchrist's[7] attention. Furthermore, our conclusions about the mode of action of anticoagulants were identical with his, for this is what we wrote : "The success of anticoagulant treatment is therefore due much less to prevention of embolism than to reduction of thrombogenic effect of circulatory shock on the myocardium, lungs, and peripheral circulation."

"Tromexan" represents a great advantage over dicoumarol, in so far as the danger of prolonged bleeding is much reduced. If haemorrhage occurs it is almost always a haematuria noticed by the patient, for it is preceded by lumbar pain ; it subsides after withdrawal of the drug for 24–48 hours. Under these circumstances daily prothrombin estimation is not required, and thrice-weekly tests during the first week—twice weekly afterwards—suffice. Some of our outpatients have been having tromexan for many months for various reasons, and in them fortnightly estimations proved to be sufficient. This makes domiciliary treatment possible—an advantage which Gilchrist fails to appreciate. In spite of tromexan, consolidation of the lung bases often occurs, and this should not be mistaken for pulmonary embolism, as infarction of the right ventricle is a rare event.[8] Infection of the consolidated lung prolongs pyrexia and increases the danger of right ventricular failure. Penicillin and chloramphenicol, not mentioned by Gilchrist, have therefore an important place in the treatment of severe cardiac infarction.—We are, etc.,

C. PAPP.
K. SHIRLEY SMITH.

Charing Cross Hospital, London, W.C.2.

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2 —— and Smith, K. Shirley (1951). *British Medical Journal*, **1**, 1471.
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5 —— —— (1952). Proc. Brit. Card. Soc., *Amer. Heart J.*, in press.
6 Smith, K. Shirley, and Papp, C. (1951). *Brit. Heart J.*, **13**, 467.
7 Gilchrist, A. R. (1952). *British Medical Journal*, **2**, 351.
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An Unusual Case of Allergic Dermatitis

SIR,—A man aged 38 consulted me four months ago for a scaly and creeping skin condition involving the genital organs, lower abdomen, and thighs. He stated that the condition had commenced on the penis and had spread rapidly. Investigation revealed the fact that he was in the habit of using a washable sheath for contraceptive purposes, and that after use the article was carefully washed, dried, and dusted with a good quality talcum powder, and thus kept ready for immediate use. The condition cleared up rapidly under treatment with antihistaminics, and has not recurred since the adoption of a contraceptive technique not requiring the use of talcum powder. This case has made me wonder whether the use of talcum powder inside rubber gloves may not sometimes be responsible for the dermatitis on hands and arms from which surgeons sometimes suffer.—I am, etc.,

Skegness, Lincs. J. DESMOND O'NEILL.

Choroidal Tubercles

SIR,—I think that Dr. A. R. Somner (August 16, p. 356) is right in his observations on the healing of choroidal tubercles. We now feel that the parchment white scar with a well-defined sharp edge, which we described[1] as the healed stage, is seen as the end result of only the large choroidal tubercles. Smaller tubercles seem to stop at the stage when there is a pale yellow area, smaller than that of the original tubercle, and with a better-defined edge, but with speckled pigmentation in and around them. This corresponds to the "intermediate stage" described in our paper, a stage through which the large tubercles pass before they reach the parchment white scar of the terminal stage.—I am, etc.,

University of Sheffield, Department of Child Health. R. S. ILLINGWORTH, Professor of Child Health.

REFERENCE

1 Illingworth, R. S., and Wright, T. (1948). *British Medical Journal*, **2**, 365.

Admission of Poliomyelitis Cases to General Wards

SIR,—Your feature "Any Questions?" has recently given two answers bearing on this subject (July 26, p. 244, and August 9, p. 349) which together must leave the reader in doubt.

Comprehensive information about the possibilities of cross-infection has, so far as I know, not been published apart from a brief article in the *Bulletin of the Ministry of Health* in 1950 (p. 244). Since the *Bulletin* has not a wide circulation it may now be profitable to recall some of the findings. In 1949 a questionary was sent to all regional hospital boards and boards of governors of teaching hospitals in England and Wales. Among many other questions the following was asked:

"*Cross-infection in Hospital.*—This has generally been regarded as very rare, but comprehensive information would be valuable. Notes should state whether instances of suspected cross-infection have occurred in (*a*) staff or (*b*) patients. Negative as well as positive information is valuable. Information as to the dates of onset and some indication of the degree of contact—e.g., same ward, next bed, etc.—should be given."

Eventually returns relating to 7,832 patients were received from hospitals, and in 5,423 (69%) of these the diagnosis of poliomyelitis or polio-encephalitis was accepted by the hospitals. Nearly all these patients were admitted to hospitals for infectious diseases and very few to general hospitals.

Among this large number of patients there were, in 1949, 12 instances of possible cross-infection. Brief accounts are given below.

Cases 1 and 2.—These occurred in an orthopaedic hospital to which patients convalescent from poliomyelitis were being transferred from a hospital for infectious diseases. The sequence of events was as follows: Child A—who had paralytic poliomyelitis with onset July 9, 1949—was treated in a hospital for infectious diseases and transferred to the orthopaedic hospital on August 18. Child B—who had paralytic poliomyelitis with onset July 19—was treated in the same hospital for infectious diseases and transferred to the orthopaedic hospital on August 18. Subsequently a child who had been in the orthopaedic hospital for many months with tuberculosis of the hip developed severe paralytic poliomyelitis on August 30, and another child in the same ward developed severe paralytic poliomyelitis on September 16.

Case 3.—Three child patients with poliomyelitis were being nursed in a general ward in a children's hospital. A girl of 13 with a skin complaint was admitted on October 14, 1949, to a part of this ward which was to some extent separated from it. She was discharged on October 27, and developed poliomyelitis on October 29.

Cases 4 and 5.—A boy, age unstated, with appendicitis was admitted to a cubicle in a general hospital on August 16, 1949. His appendix was removed and he had penicillin injections up to August 21. Another boy with abdominal pain, which was at first thought to be due to appendicitis but was really due to pre-paralytic poliomyelitis, was admitted to the same cubicle on August 18, and moved away on August 20. The first boy developed paralysis of the legs between August 16 and September 26, but the exact date of onset could not be determined because he developed a pelvic abscess after his appendicectomy.

A boy in the same general hospital had an embryoma of the kidney, for which he was being treated by radiotherapy. He developed poliomyelitis on August 31. A patient with convulsions, which were subsequently diagnosed as being due to poliomyelitis, had been admitted to the same ward on August 12, and had not been barrier nursed until August 16.

Case 6.—A boy, aged 2 years 4 months, was admitted to a hospital for infectious diseases on September 11, 1949, suffering from measles and bronchopneumonia. On October 7 he developed flaccid paralysis of the left leg. He was being nursed in a pavilion separate from but contiguous to one in which there were patients with poliomyelitis, and the only persons who came in contact with both this boy and the patients with poliomyelitis were doctors and, possibly, relief nurses on night duty. This is the only instance in this series in which a patient in a hospital for infectious diseases seemed to have contracted a cross-infection.

Cases 7 and 8.—A boy, aged 2½ years, was admitted to a general hospital on June 7, 1949, with tuberculous meningitis. He was treated with intrathecal streptomycin and sulphetrone for six weeks, and with intramuscular streptomycin from admission till October 2. On September 27 he had intermittent fever and developed severe paralysis of all four limbs and of the trunk, diaphragm, and neck. He was nursed in a children's ward which opened off the same corridor as did the cubicles in which two paralytic patients with poliomyelitis were being nursed between August 3 and October 20.

A boy, aged 2 years, was admitted to the same hospital as Case 7 on August 30, with a fractured base and discharge of cerebrospinal fluid from the right ear. He became febrile and was treated with intramuscular penicillin. On September 9 he developed mastoiditis and was moved to a distant part of the hospital for operation. Four days later he developed fever and, later, flaccid paralysis of the left leg, so he was transferred to his original ward for cubicle isolation. He made an almost complete recovery.

Case 9.—A boy, aged 3 years, was admitted to the general children's ward of a general hospital on September 28, 1949, for an operation for right inguinal hernia. There were patients with poliomyelitis in the ward at the time. The operation was performed on September 30, and on October 7 the boy developed a pyrexia for which no cause was found. On October 17 he developed pain and tenderness in the right thigh, which were followed by weakness. A diagnosis of anterior poliomyelitis was made.

Case 10.—A boy, age unstated, who was being treated in a general hospital for abdominal tuberculosis by injections of streptomycin into both legs, developed paralysis of both legs. For a few days after admission he was in the next cubicle to one in which there was a patient with poliomyelitis, and afterwards he was in the same ward as this patient for three weeks before he himself developed signs of poliomyelitis. The onset of his symptoms was in fact eight weeks after his first contact with the patient suffering from poliomyelitis.

Case 11.—A girl, aged 2½ years, was treated in a children's hospital for tuberculous meningitis by injections of streptomycin into both thighs. She was admitted in March, 1949, and in November developed typical poliomyelitis affecting the left leg. She had been nursed in a side ward; in November three children with poliomyelitis in a separate ward across the corridor were being nursed by the same nursing staff and attended by the same doctors. She was also being visited by relatives.

Case 12.—A girl with staphylococcal septicaemia was treated in a general hospital. After recovery she was noticed to have a limp affecting the right leg, but had no other evidence of paralysis. Two months after admission she had had a short febrile illness and had then developed a definite paralysis of the right leg. No recognized cases of poliomyelitis either were or had been in the hospital at the same time, but it seems possible that she was infected in hospital from an undiscovered source.

It is easy to be wise after the event, and we did not, as we should have done, work out the exact number of patients treated in general and orthopaedic hospitals in 1949 as compared with the number treated in hospitals for infectious diseases, but we do know that, comparatively, very few were treated in general and orthopaedic hospitals. If we assume that the special discipline of the hospital for infectious diseases is unimportant it is surprising that the general and orthopaedic hospitals with very few cases produced 11 reports of possible cross-infections, whereas the hospitals for infectious diseases produced only one.

We do not know much about the actual, as opposed to the theoretically possible, mechanisms of spread of virus. If we knew more we might be able to decide which particular parts of the discipline of the hospital for infectious disease were important and adapt them for use in general hospitals. In the present state of our knowledge I submit that it is wise to admit patients in the acute stage to hospitals for infectious diseases.

For the sake of brevity I have omitted all reference to cognate subjects, such as infection of staff, the influence of trauma, period of infectivity, and so on. The subject is complex and of great practical importance, and perhaps the committee recently set up by the Royal College of Physicians may feel that it is one which they might profitably investigate.—I am, etc.,

Bristol University. A. H. GALE.

Obituary

Dr. CHARLES LESLIE MASON, who died in London on August 10 at the age of 59 after a short illness, was born in London in 1893, the son of the late Dr. J. W. Barron Mason, who died in 1930. He was educated at Epsom College and at St. Mary's Hospital, qualifying L.M.S.S.A. in 1922. After holding house appointments at St. Mary's Hospital he settled in general practice in the Regent's Park district of London. A member of the British Medical Association, he represented his constituency at the Annual Representative Meeting on several occasions, and had been a member of the executive committee of the St. Pancras Division. He is survived by his widow, Dr. Dorothy E. Mason, to whom our sympathy is extended.

Dr. E. A. GREGG writes: The tragically sudden death of Dr. C. L. Mason has taken from us a most beloved colleague. His loss is deplored not only in St. Pancras and north-west London but also throughout the whole country. His outstanding service as chairman of the local medical committee and on the London Executive Council alone would be enough to indicate the debt the practitioners of London owe him. He went far outside this work, and gave himself freely to hospital management committee work and to a host of other commitments—L.C.C. committees, school medical service, nursing committees, and many others. He was quiet and reserved, thoughtful, and wise, and never put himself forward, but his wise counsel and sterling worth soon marked him out for positions of responsibility and leadership. He came of a medical family and inherited the highest ideals of our profession. How well he developed and exemplified these in his own life and work. Devotion to duty and loyalty to his profession were the foundations on which he built. He was urged to allow his name to go forward for election to the borough council, and he gave himself with the same earnestness and devotion to his public work that characterized all that he did. More exalted positions awaited him, and his untimely death has robbed not only his profession but the public life of the borough of one we could ill afford to lose. His place will be very hard to fill, and his memory will remain an inspiration to all of us. It may well and truthfully be said of him that he was "one who never turned his back but marched breast forward."

By the death of Dr. A. S. L. BIGGART at Barton-on-Sea, Hampshire, on June 22 in his 72nd year, after only a short retirement from active practice, his colleagues in West Hartlepool have lost a friend who had been one of the most active supporters of the British Medical Association in the north of England. Arnold Samuel Longbotham Biggart was born in 1880, the son of the first medical officer to the port of Hartlepool, and was educated at the University of Edinburgh, where he graduated M.B., Ch.B. in 1904. After a period of hospital appointments and travel abroad as a ship surgeon, he joined his father in practice in 1906. He was a good type of family doctor who, by hard work and an excellent knowledge of medicine, built up one of the most successful practices in the Hartlepools. During his many years in practice he worked often without any regard to his own health, and his knowledge and sound common sense enabled him to give help and advice to many even outside his medical work. He represented the Hartlepools for many years at the Annual Panel Conference and was for 25 years the chairman of the local panel committee. After the war of 1914–18 it was mainly through his efforts that interest in the Hartlepools Division of the British Medical Association was reawakened, and he was active in promoting both the scientific and the social sides of the Division, of which he was chairman in 1922 and again from 1934 to 1936. He also represented his constituency at several Annual Representative Meetings of the Association. Dr. Biggart was medical officer to the Hartlepool port health authority from 1915 to 1948, and from 1935 until his retirement in 1948 he was a physician on the staff of the Cameron Hospital and for many years a member of its management committee. Even during a busy professional life he found time to enjoy a round of golf. Always of a very cheerful nature and an excellent raconteur, one of his greatest pleasures was to spend an evening among his friends. He leaves a widow and three sons.

Dr. ALEXANDER KIRKHOPE, who died at his home at Harrogate on July 24 at the age of 67, was born at Carluke, Lanarkshire, on October 5, 1886, and was educated at the University of Glasgow, where he graduated M.B., Ch.B. in 1911. During the war of 1914–18 he served in the R.A.M.C., chiefly in Italy and France, being attached to the Royal Welch Fusiliers and to the Royal Flying Corps. In 1917, while still in the Army, he married Miss Margaret Swanson Paxton, of Airdrie, Lanarkshire. He settled in Harrogate in 1918, and practised there until his death. Dr. Kirkhope lived for his work. It occupied the greater part of his time and left him little leisure for outside interests, hobbies, or recreation. His reward was in the close and lasting friendships which he made with people of all descriptions whom he met in the course of his professional work. He leaves a widow.—G. N. B.

The death of Dr. ARTHUR TOWNSEND on August 2 will be regretted by a wide circle of those who knew him either as a colleague or as a physician. The son of a Birmingham specialist in ophthalmology, Arthur Allen Deykin Townsend was born in 1865, and studied medicine at Queen's and Mason Colleges, Birmingham, qualifying M.R.C.S., L.R.C.P. in 1890. He took the degrees of M.B., B.Ch. of the University of Birmingham in 1901, and proceeded M.D. two years later. In 1904 he was awarded the bronze medal and prize of the Royal Medico-Psychological Association. Soon after qualifying Townsend was appointed a junior assistant medical officer to Barnwood House, Gloucester, the well-known hospital for nervous and mental disorders. Psychiatry made an instant and lasting appeal to him, partly perhaps as a result of serving with two remarkable men, Sir Frederick Needham and Dr. J. Greig Soutar. Townsend spent most of his professional life at Barnwood House, of which he became superintendent in 1919, and from which he did not retire until 1937. All who met him carried away an impression of kindly courtesy and deep sincerity. His clinical skill and sympathetic understanding earned for him a very high reputation among his patients and their relatives. Townsend's devotion to Barnwood House was remarkable. His constant thought was for the hospital and for the cure, comfort, and well-being of his patients. He was a ceaseless worker and set an inspiring example to all who served with him. His medical and nursing staff gave him a loyal service which was mingled with admiration and affection. Always modest, Townsend never sought publicity, and few people knew that he was offered more than one important post but preferred to remain with the hospital which he served so long and so faithfully. He made an almost perfect medical witness. Many will remember Townsend's part in the trial at Hereford Assizes in 1922 of Major H. R. Armstrong, who was found guilty of poisoning his wife and subsequently hanged. On that occasion Townsend was thanked by the judge for the clarity of his replies to questions and for his lucid explanation of the technical terms employed in the trial. A member of the British Medical Association for 58 years, Townsend acted as honorary secretary of the Section of Psychological Medicine at the Annual Meeting of the Association held at Cheltenham in 1901. To those privileged to be his friends Townsend was ever a charming and witty companion. A shrewd judge of horse-flesh, he delighted in a day's racing and was thrilled by every finish. He was exceptionally happy in his home life, and to be entertained by him and Mrs. Townsend was something to be enjoyed and to be treasured in the memory. At this time of bereavement the heartfelt sympathy of all who knew him will go out to Mrs. Townsend and to her two sons.

Dr. ANDREW ALEXANDER MCWHAN, who died suddenly at his home at Duns on August 6 at the age of 71, was born at Linlithgow on February 14, 1881, and was educated at the University of Glasgow, where he graduated M.B., Ch.B. in 1906. Three years later he took the degree of B.Sc. in public health of the University and the D.P.H. of the English Royal Colleges. Dr. McWhan had had considerable war experience. He saw service in the South African war as a sergeant at a field hospital, and in the war of 1914–18 he served in the R.A.M.C. in Egypt with the 2nd Mounted Division, in Salonika with the 22nd Division, and in the Sinai Desert as technical adviser on water reconnaissance for the desert column, attaining the rank of major. For his services he was twice mentioned in dispatches. On his return to the United Kingdom he became deputy assistant director of medical services, Scottish Command. Dr. McWhan was medical officer of health and school medical officer for Berwickshire from 1911 to 1946, having been previously assistant medical officer of health and school medical officer for Fifeshire. A member of the British Medical Association for many years, Dr. McWhan was honorary secretary of the South-eastern Counties Division from 1923 to 1936, chairman of the Division from 1938 to 1940, and president of the Edinburgh Branch in 1934–5. He also represented his constituency at the Annual Representative Meetings of the Association in 1930, 1935, 1936, 1938, and 1941. Dr. McWhan was a member of the Scottish Council for Health Education, a member of the council of the Scottish branch of the Society of Medical Officers of Health, and a Fellow of the Royal Sanitary Institute.

Mr. CUTHBERT LOCKYER writes: Among the many facets of the working-day life of Dr. E. B. HULBERT (*Journal*, August 2, p. 289) I was surprised to find no mention of his being resident medical officer at the Florence Nightingale Hospital, where, in the days of Sir Lenthal Cheatle, H. J. Paterson, H. S. Clogg, and Morley Fletcher, E. B. Hulbert and his parrot were great favourites.

Medico-Legal

HYPERSENSITIVITY TO MYODIL

[FROM OUR MEDICO-LEGAL CORRESPONDENT]

On November 27, 1951, Kenneth Dodd, of Hexham, Northumberland, a platelayer aged 23, was admitted to Hexham General Hospital to be treated for sciatica which was believed, accurately, to be due to a prolapsed intervertebral disk. When he failed to improve with rest he had a plaster jacket fitted and was discharged. On February 5, 1952, he was readmitted and the jacket was removed, but pain occurred again and it was decided to investigate further with a view to operation.

Accordingly on February 14, 1952, 3 ml. of "myodil" was injected into the spinal canal. It was the normal recognized dose, and successful radiographs were taken, the dye having worked satisfactorily. On the morning of February 16, however, the patient complained of a headache, and was found to have stiffness of the back and neck. The appearance of a specimen of fluid taken from the spinal canal suggested either bacterial infection or chemical irritation of the spinal cord. On that day, therefore, 50,000 units of penicillin was injected into the spinal canal and some into the muscles. Next morning a further 200,000 units was injected. An hour later he became mentally confused and developed a series of epileptic fits, after two hours of which he died.

Dr. G. J. Laws, consultant pathologist to the Hexham General Hospital, who carried out the necropsy, found no bacterial inflammation and no trace of pus, and concluded that the cause of death was status epilepticus due to cerebral irritation caused by myodil and penicillin in an abnormally sensitive patient.

This is believed to be the first myodil fatality in Britain.

Universities and Colleges

UNIVERSITY OF OXFORD

In Congregation on July 19 the following medical degrees were conferred:

D.M.—J. M. K. Spalding.

B.M.—M. J. A. Davies, P. J. R. Phizackerley, D. R. Oppenheimer, W. D. Hayley, R. T. H. Shepherd, M. A. Smith, M. S. Finn, D. G. H. Patey, R. M. Murray-Leslie, J. M. H. Brooks, A. T. N. Fletcher, R. A. Leake, F. C. C. Schwerdt, Viscount Suirdale, E. D. R. Campbell, N. J. Carlile, R. M. Bannerman, J. W. P. Bradley, C. W. H. Havard, J. E. Cradock-Watson, D. H. Davies, J. C. MacLarnon, J. S. M. Mitchelson, R. L. Orcutt, G. D. Wilson, Carmen M. Rant, Eleonore Feldberg, Felicity C. Toussaint, *H. G. Klemperer, *H. N. Hardy.

The Mary Goodger Scholarship for 1952 has been awarded to Marianne Fillenz (Somerville College).

In Congregation on August 2 the degree of B.M. was conferred on C. T. M. Wilson and E. H. Jellinek.

The Radcliffe Scholarship in Pharmacology has been awarded to Roland David Stedeford (Worcester College).

*In absence.

UNIVERSITY OF CAMBRIDGE

Grants from the Pinsent-Darwin Reserve Fund have been made to Dr. Brian William Davy, junior health service officer of the Department of Human Ecology, and to Miss M. Reinhold, of the National Hospital, Queen Square, London, W.C.

In Congregation on August 2 the following medical degrees were conferred:

M.D.—*J. S. Pegum, E. L. McDonald, D. R. Smith, G. S. Crockett, M. A. Floyer, K. N. V. Palmer.

M.B., B.CHIR.—*O. H. Watkins, *E. Wilkes, B. W. Broadhurst, P. S. Reay-Young, *P. A. J. Ball, *H. G. Britton, *S. McC. Cannicott, *H. Caplan, *R. H. Davison, *J. F. Newcombe, *C. Rashbass, *C. A. Sharples, *M. P. Siddons, I. M. Glynn, W. N. B. Parker, *N. W. Ashworth, *J. B. Chapman, *R. J. L. Davis, *D. S. Jeffery, *D. Wise, P. Griffiths, J. S. Lewis, J. M. Rigg, J. M. Simister, *O. H. French, *J. Innes, J. D. C. Anderson, R. J. Spray, *D. M. E. Allan, *R. R. A. Coles, *M. Dulake, *A. L. Hilton, *A. B. Lowther, *R. M. Standish-White, M. H. H. Bishop, T. F. Bushby, A. S. Cooper, J. E. Phillips, *M. K. Mead, *R. F. Warnock, *W. J. Colbeck, *J. I. W. Davies, *J. R. Edwards, *P. J. Lyne, *J. M. S. McCoy, *J. W. M. Stone, *D. H. Trapnell, *J. Watson-Farrar, R. Baxter, C. J. Booth, A. R. Butterfield, R. T. D. FitzGerald, J. H. Robson, G. M. Shaw, G. W. Smallcombe, C. M. Stafford, D. G. Thomas, *M. J. Boyle, *C. E. T. Cones, *E. P. Hilary-Jones, *M. F. R. Waters, J. H. Edwards, R. W. Ross Russell, G. I. Verney, *G. M. B. Bulmán, *R. Mangnall, D. G. D. Vint, *I. C. Dow, *A. V. Dunlop, *T. W. Rayner, *J. H. Swallow, *J. S. H. Whitehead, *E. A. Wilson, D. Bryant, E. Hainsworth, *R. G. Daniels, *N. Gee, *P. J. McQuade, *R. L. Smith, *M. L. Thomas, *B. G. S. F. Vergano, T. Hall, *J. G. Davies, *G. C. Metcalfe, *F. V. Simpson, *W. Eade, *D. H. Kay, *J. Liddell, *R. Goldsmith, *R. C. Norton, *R. E. Wolfendale, A. W. Beard, *P. F. A. Crawshaw, *J. R. Flury, *J. M. A. Jepps, *J. S. H. Lodge, *J. H. Sewart, G. R. C. Campion, V. Sarma, *J. N. T. Evans, *D. S. Harry, *J. H. Jones, *R. J. Mather, *D. Harrett, *R. Harrison, *E. I. Kohorn, J. O. Ojukwu, Mrs. Kathleen M. Bennison, Hilary J. Shimmin, *Betty Chester, June E. Brett, Betty R. Corbin, *P. J. Dawson, *J. A. McHardy, E. M. Douglas, *H. W. S. Francis.

*By proxy.

UNIVERSITY OF LONDON

The title of Professor Emeritus of Bacteriology in the University has been conferred on Professor S. P. Bedson, F.R.S., on his retirement from the Goldsmiths' Company's Chair of Bacteriology at the London Hospital Medical College which he has held since 1934.

The title of Professor Emeritus of Chemical Pathology in the University has been conferred on Professor J. R. Marrack on his retirement from the Chair of Chemical Pathology at the London Hospital Medical College which he has held since 1934.

The title of Professor of Pharmacology and Therapeutics in the University has been conferred on Cyril Arthur Keele, M.D., F.R.C.P., in respect of the post held by him at the Middlesex Hospital Medical School.

The title of Professor of Chemical Pathology in the University has been conferred on Nicholas Henry Martin, B.M., B.Ch., M.R.C.P., in respect of the post held by him at St. George's Hospital Medical School.

The title of Reader in Bacteriology in the University has been conferred on Brian Westgarth Lacey, M.B., B.S., in respect of the post held by him at Westminster Medical School.

The title of Reader in Morbid Anatomy in the University has been conferred on Alan Douglas Morgan, M.B., Ch.B., in respect of the post held by him at Westminster Medical School.

The degree of D.Sc. has been conferred on P. C. C. Garnham, M.D., D.P.H., who becomes Professor of Medical Protozoology at the London School of Hygiene and Tropical Medicine in October next.

Mr. P. H. Mitchiner has been reappointed Deputy Vice-Chancellor for 1952-3.

Dr. C. F. Harris has been appointed a representative of the Senate on the Court for five years from October 1.

The following have been recognized as teachers of the University in the subjects indicated in parentheses: *St. Mary's Hospital Medical School*, Mr. J. C. Adams (Orthopaedics); Dr. J. D. W. Pearce (Mental Diseases). *Institute of Psychiatry*, Dr. E. A. Bennet, Dr. D. L. Davies, Dr. Arthur Harris, Dr. Felix Post (Mental Diseases). *Institute of Child Health*, Dr. Martin Bodian and Dr. I. A. B. Cathie (Pathology); Dr. G. H. Newns (Children's Diseases); Dr. W. W. Payne (Chemical Pathology). *Guy's Hospital Medical School*, Mr. P. W. Clarkson (Surgery). *Institute of Cancer Research*, Dr. M. Lederman (Radiology, Therapy). *Institute of Orthopaedics*, Mr. H. J. Seddon (Orthopaedics). *Postgraduate Medical School of London*, Dr. Sheila P. V. Sherlock (Medicine); Mr. S. F. Taylor (Surgery).

Dr. C. W. Kesson has been granted probationary recognition as a teacher of children's diseases at St. George's Hospital Medical School for two years from June, 1952.

The following, who are already recognized teachers at undergraduate medical schools, have been recognized also as teachers in the subjects indicated in parentheses at the Institute of Orthopaedics: Mr. H. Jackson Burrows, Mr. V. H. Ellis, Mr. P. H. Newman, and Mr. David Trevor (Orthopaedics); Dr. F. C. Golding (Radiology); Mr. D. N. Matthews (Surgery); Dr. J. R. Nassim (Medicine).

In and after 1952 the examination for the Academic Postgraduate Diploma in Clinical Pathology and for the Diploma in Clinical Pathology for external students will begin on the last Monday in September instead of in the week beginning on the first Monday in October.

Dr. T. H. Sanderson-Wells has made a further gift of £500 towards his fund for a studentship in nutrition.

The following candidates have been approved at the examinations indicated:

M.D.—*Branch I (Medicine):* M. W. Arthurton, D. W. Barritt, D. C. Beatty, B. Creamer, F. E. Dische, D. D. Gellman, E. W. Hughes, C. B. Ingor-Willey, A. H. Levy, Joyce J. P. Lomas, M. A. Macan-Markar, D. Y. Mackenzie, R. G. Moore, P. W. Nathan (Mark of Distinction), J. Parkyn, M. G. Philpott, A. E. A. Read, I. P. Ross, G. W. Scott, H. T. N. Sears, D. G. H. Sylvester, A. Wiener (Mark of Distinction and University Medal), E. Williams, T. C. P. Williams. *Branch II (Pathology):* J. V. Dacie, L. R. Davis, J. H. O. Earle, H. V. J. Fernando, H. Greenburgh, T. D. S. Holliday, A. C. Hunt, Margaret P. Jevons, B. W. Meade, W. D. Ratnavale, J. H. Shore, J. M. Talbot, Phyllida M. M. Thornton, J. R. B. Williams, T. B. Williamson. *Branch III (Psychological Medicine):* A. A. Baker, R. A. Hunter, E. J. Rich, J. D. Richardson, E. Roderic-Evans. *Branch IV (Midwifery and Diseases of Women):* A. C. Barthels, D. P. Cocks, G. M. Evans, C. M. Flood, G. T. Hammond. *Branch V (Hygiene):* L. J. Clapham, N. R. E. Fendall, Kathleen M. Harding, G. R. Holtby, Mary M. E. Rutter, J. F. Skone, M. D. Warren. *Branch VI (Tropical Medicine):* J. R. Harries.

M.S.—*Branch I (Surgery):* J. W. P. Gummer, R. E. Horton, P. G. Large, K. W. Martin, A. J. H. Rains. *Branch III (Ophthalmology):* H. N. Reed.

ACADEMIC POSTGRADUATE DIPLOMA IN MEDICAL RADIOLOGY (DIAGNOSIS).—A. T. Broadbridge, R. J. Callander, D. Datt, J. J. Geere, V. Roseverne.

ACADEMIC POSTGRADUATE DIPLOMA IN MEDICAL RADIOLOGY (THERAPY).—K. A. Newton, R. C. S. Pointon, L. C. Robson, Jean K. M. C. Wilson.

UNIVERSITY OF MANCHESTER

The amount raised by subscription for the H. S. Raper Prize now totals £491 8s. 10d. The committee of the prize fund proposes that the annual income after investment should be awarded as a prize on the recommendation of the professors of physiology and medicine and the chairman of the faculty board; they would take into account the aggregate of marks obtained in physiology and medicine in the professional examinations. The subscription list is still open and cheques should be made payable to the bursar, University of Manchester, and crossed "Raper Fund."

UNIVERSITY OF WALES

The following candidates have been approved at the examinations indicated:

M.CH.—C. W. D. Lewis.

M.B., B.CH.—I. B. Morgan, J. H. Naysmith, G. V. Browning, Gillian M. Bryant, H. G. Burgess, A. Capstick, Jean E. Clarke, Hilda Cohen, Marian W. Daniel, E. G. Davies, Jean M. Davies, D. G. Edwards, Betty Evans, D. L. Evans, Mary E. Ll. Evans, D. W. Foster, Beryl A. Foulger, J. N. Glanville, Felicity Harris, G. B. Harris, W. R. Henwood, J. Hughes, C. W. J. Hunt, Betty R. Jones, B. Jones, J. F. Jones, T. L. Jones, G. P. Lewis, J. E. Lloyd, Norma A. Lloyd, Dorothy J. Luck, A. D. Mason, J. E. Merrell, J. S. Miller, K. C. Parsons, D. C. Powell, J. Quirk, C. J. Revington, O. S. Roath, G. H. Roberts, J. Roberts, R. W. Shepherd, Glenna Thomas, Phyllis M. Thomas, Margaret M. Walker, J. E. Watkin, Elfreda A. Watkins, W. J. B. White, Elizabeth M. M. Williams, Meriel Williams.

UNIVERSITY OF BIRMINGHAM

Paul Henderson Davis, M.D., M.R.C.P., has been appointed University Clinical Lecturer in Medicine.

The title of University Research Fellow has been given to Charles Nigel Dallas Cruickshank, M.D., D.I.H., in the Department of Experimental Pathology.

At a Congregation on July 5 the following medical degrees were conferred:

M.D.—F. G. W. Marson, H. W. Pooler.

M.B., CH.B.—[1]Christine C. Wade, J. G. Ball, G. Baum, W. G. C. Bearcroft, G. Beaumont, Ll. A. W. Bellamy, Beatrice W. Boulton, Iona M. Brereton, J. R. Brown, M. Cooke, N. F. D. Cooper, G. H. C. Daley, O. W. Deacon, [2]D. Dean, [3]J. M. Dolphin, [3]H. A. Ellis, Lucy M. Ellis, D. I. Ferguson, H. W. Goldfarb, R. N. Gunness, R. J. Halpin, Joan E. Hancock, K. Harrison, R. C. Hartley, Margaret A. Hartshorne, Betty D. Heap, [3]L. Henry, E. R. Hitchcock, B. D. Hodge, Jane C. Iles, B. Ingham, G. H. Jeavons, Thelma D. Johnson, Olive G. Jones, E. Kinnear, R. C. Lambert, C. G. Lloyd, Patricia M. Lumb, Ursula R. Mindelsohn, J. T. F. Morrall, G. A. I. Namsoo, Cecile E. Needham, Kathleen M. Neville, C. D. Oakley, J. R. Owen, J. S. B. Preece, G. J. Rice, D. P. W. Roberts, G. G. Roberts, C. R. Salisbury, J. Ll. Skinner, E. A. Smith, Jean G. Smith, J. H. Smith, A. T. Spencer, K. A. Tomlinson, Meriel F. Underwood, D. H. Wadelton, D. Watton, H. E. Wells, Cleon White, [4]G. White, H. E. Wilson, R. G. Woodwards, H. Young, [3 4]P. A. Bramley, [4]Judith M. Leather, [4]E. J. Rix.

[1]With second-class honours. [2]With distinction in paediatrics and child health. [3]With distinction in medicine. [4]*In absentia.*

QUEEN'S UNIVERSITY, BELFAST

The following candidates have been approved at the examinations indicated:

M.D.—[1]Sarah L. Campbell, [1]R. A. N. McMath, [1]T. Wilson, R. N. Beck, P. J. Blaney, E. W. T. Henry, J. C. Hewitt, R. J. Marshall, Frances L. J. Robinson, K. L. Stuart, A. P. Trimble.

M.B., B.CH., B.A.O.—[2]F. C. O. Allen, [2]R. F. C. McDowell, [2]J. H. H. Stewart, C. A. C. Abraham, D. A. Aiken, G. L. Balgobin, S. C. Bateman, R. C. Bloomfield, C. A. Boddie, Katherine P. Boyle, Eileen S. Browne, J. Carroll, T. A. Christie, P. M. Corkey, C. E. Cosgrove, E. C. Cowan, G. E. Crawford, Margaret H. Dales, S. N. Donaldson, D. Duffin, D. Duignan, T. L. Dunn, D. S. Fullerton, Dorothy Gilpin, Florence C. Gordon, W. H. Graham, T. M. Hannigan, K. K. A. Hofheinz, H. B. Kean, J. Lowry, M. Lowry, S. J. H. Lowry, W. N. C. McCleery, J. W. McKay, T. J. McLister, Elizabeth G. H. McLucas, J. B. H. Martin, J. S. Y. Mathewson, E. S. Mitchess, J. Moore, A. L. Murphy, Frances M. Murphy, R. C. W. Murphy, Betty Nicholl, Margaret Nicholl, R. M. Nicholl, P. J. O'Neill, B. Z. Rosensweig, D. Ross, G. M. Scott, A. Smyth, Mabel M. Stevenson, E. M. W. Stuart, Zoe Waddington, Margaret G. Warwick, Madge G. Watson, Mary J. Watson, A. G. C. Wilson, A. J. Woods, J. H. Woolf.

DIPLOMA IN PUBLIC HEALTH.—J. Andress, T. L. Gracey, G. A. Kernohan, Anne W. Kilpatrick, E. I. Mulholland, C. R. C. Rainsford, Sarah E. M. Sherrard, H. P. Swan.

CERTIFICATE IN PUBLIC HEALTH.—S. S. McCann.

[1]With commendation. [2]With second-class honours.

INFECTIOUS DISEASES AND VITAL STATISTICS

Summary for British Isles for week ending **August 9** (No. 32) and corresponding week 1951.

Figures of *cases* are for the countries shown and London administrative county. Figures of *deaths* and *births* are for the 160 great towns in England and Wales (London included), London administrative county, the 17 principal towns in Scotland, the 10 principal towns in Northern Ireland, and the 14 principal towns in Eire.

A blank space denotes disease not notifiable or no return available.

The table is based on information supplied by the Registrars-General of England and Wales, Scotland, N. Ireland, and Eire, the Ministry of Health and Local Government of N. Ireland, and the Department of Health of Eire.

CASES in Countries and London	1952 Eng. & Wales	1952 Lond.	1952 Scot.	1952 N. Ire.	1952 Eire	1951 Eng. & Wales	1951 Lond.	1951 Scot.	1951 N. Ire.	1951 Eire
Diphtheria	19	2	8	0		19	0	5	1	2
Dysentery	119	22	69	2	6	149	25	75	0	
Encephalitis, acute	4	2	0	0		6	0	0	0	
Enteric fever: Typhoid	4	0	3		1	12	2	3	0	1
Paratyphoid	62	1	1(B)		0	44	7	5(B)	1	
Food-poisoning	150	21		0		77	12		3	
Infective enteritis or diarrhoea under 2 years				14	39				10	70
Measles*	7,010	926	47	68	146	3,621	69	74	128	83
Meningococcal infection	18	0	8	2	2	24	0	15	2	
Ophthalmia neonatorum	19	3	10	0		25	2	8	0	
Pneumonia†	239	12	118	4		221	7	97	3	
Poliomyelitis, acute: Paralytic	167	16	} 8	6	1	{ 55	4	} 10	1	1
Non-paralytic	83	8				57	1			
Puerperal fever§	242	44	11	0		189	18	17	1	2
Scarlet fever	720	72	121	9	34	468	33	75	5	17
Tuberculosis: Respiratory			133	16				126	20	
Non-respiratory			25	2				27	1	
Whooping-cough	1,766	97	92		114	2,661	135	335	74	74

DEATHS in Great Towns	1952 Eng. & Wales	1952 Lond.	1952 Scot.	1952 N. Ire.	1952 Eire	1951 Eng. & Wales	1951 Lond.	1951 Scot.	1951 N Ire.	1951 Eire
Diphtheria	1	0		0		*1*	0	*0*	0	0
Dysentery	0	0					0		0	
Encephalitis, acute		1					0			0
Enteric fever	1	0		0		*0*		*0*	0	
Infective enteritis or diarrhoea under 2 years	4	1	1	1		*7*			1	0
Influenza	3	1		0		*4*	1	*0*	0	0
Measles		1		0			0	*0*	0	0
Meningococcal infection		0					0	*0*		
Pneumonia	134	9		4		*127*	19		4	4
Poliomyelitis, acute	8	3				*1*	0			0
Scarlet fever		0		0			0	*0*	0	0
Tuberculosis: Respiratory	} 74	16	{ 14	1		} *177*	{ 17	*12*	5	8
Non-respiratory			2	0			3	*3*	0	1
Whooping-cough	0	0		0		*2*	0	*0*	1	0
Deaths 0–1 year	195	17	23	10		*173*	23	*31*	15	18
Deaths (excluding stillbirths)	3,962	583	478	91		*3,646*	543	*494*	83	144
LIVE BIRTHS	7,209	1078	916	211		*6,712*	1036	*855*	245	329
STILLBIRTHS	163	14	14			*184*	20	*24*		

* Measles not notifiable in Scotland, whence returns are approximate.
† Includes primary and influenzal pneumonia.
§ Includes puerperal pyrexia.

Vital Statistics

Poliomyelitis

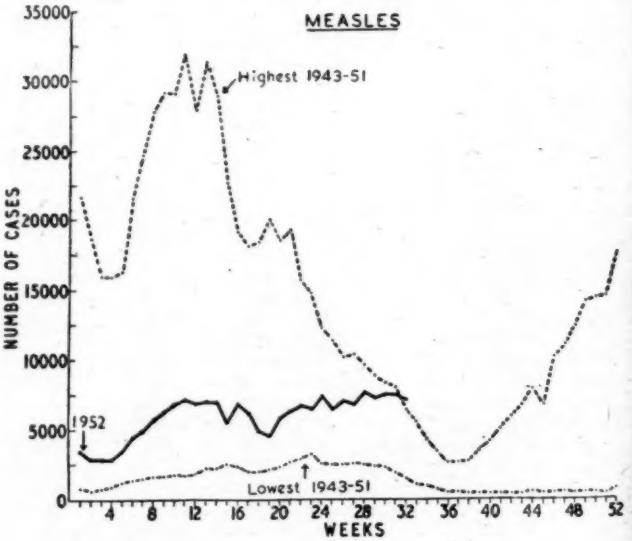
Poliomyelitis notifications (uncorrected) in the week ending August 16 (33rd week of the year) were as follows: paralytic, 170 (167); non-paralytic, 88 (83); total, 258 (250). This is an increase of 8 compared with the previous week, the figures for which are in parentheses. Up to and including the week ending August 16 the overall uncorrected notification rate for England and Wales was 5.00 per 100,000.

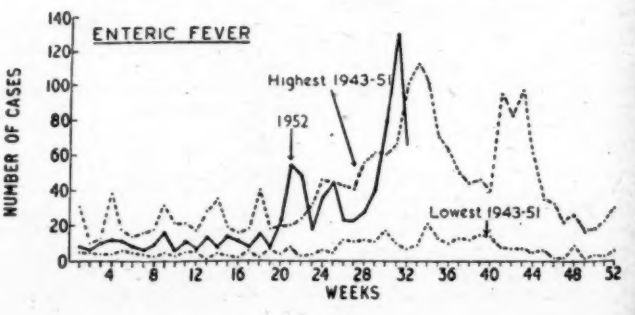
Regional rates of notifications (uncorrected) and incidence per 100,000, up to and including the week ending August 16, are as follows:

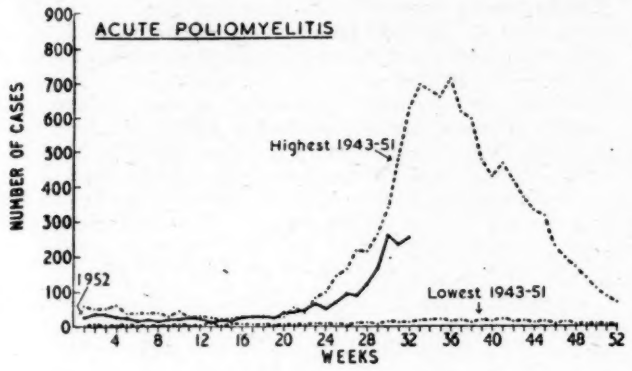
Region	Cases: Paralytic	Cases: Non-paralytic	Cases: Total	Incidence
Northern	181	157	338	10·76
E. and W. Ridings	175	47	222	5·4
North-western	129	41	170	2·7
North Midland	30	48	78	2·31
Midland	142	56	198	4·47
Southern	96	55	151	5·7
South-western	90	61	151	5·0
Eastern	106	83	189	6·16
London and S.E.	407	167	574	5·23
England and Wales	1,425	742	2,167	5·00

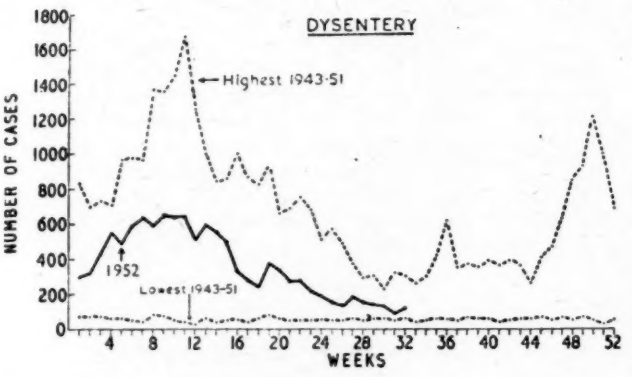
Graphs of Infectious Diseases

The graphs below show the uncorrected numbers of cases of certain diseases notified weekly in England and Wales. Highest and lowest figures reported during the nine years 1943–51 are shown thus - - - - - - - -, the figures for 1952 thus ————. Except for the curves showing notifications in 1952, the graphs were prepared at the Department of Medical Statistics and Epidemiology, London School of Hygiene and Tropical Medicine.









Infectious Diseases

Infectious diseases were less prevalent in England and Wales during the week ending August 9; decreases were reported for measles 299, scarlet fever 277, whooping-cough 276, and paratyphoid fever 68.

The largest fluctuations in the local trends of measles were decreases in Yorkshire West Riding 276, Lancashire 165, and Staffordshire 97, while there was an increase of 62 in Kent. A small fall in the incidence of scarlet fever was recorded throughout the country, the largest being 60 in Middlesex. The largest decline in the local trends of whooping-cough was 53 in Warwickshire. The number of notifications of diphtheria was the same as in the preceding week; the only variation of note in the local returns was an increase of 3 in Durham.

The decrease in the incidence of paratyphoid fever was contributed by Wales. The largest returns during the week were Brecknockshire 17 (Brecknock M.B. 10, Brecknock R.D. 5), where cream confectionery has been suspected as the vehicle of infection in this outbreak; Glamorganshire 11 cases scattered over 6 administrative areas; Lancashire 10 (Manchester C.B. 6); and Northumberland 8 (Seaton Valley U.D. 5).

Notifications of acute poliomyelitis were 28 more for paralytic and 8 fewer for non-paralytic cases than in the preceding week. The largest returns were Yorkshire West Riding 27 (Sheffield C.B. 5, Leeds C.B. 4); London 24 (Hackney 4); Middlesex 17 (Edmonton M.B. 4); Essex 17 (Thurrock U.D. 4); Durham 16 (Gateshead C.B. 4); Lancashire 16.

There were 26 more notifications of dysentery than in the previous week. The largest returns were London 22; Northumberland 21 (Prudhoe U.D. 18); Yorkshire West Riding 16 (Leeds C.B. 10); Lancashire 15.

Week Ending August 16

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 643, whooping-cough 1,872, diphtheria 17, measles 6,099, acute poliomyelitis 258, dysentery 125, paratyphoid fever 40, and typhoid fever 4.

The Services

A *Supplement* to the *London Gazette* has announced the following awards:

First and Second Clasp to the Territorial Efficiency Decoration.—Honorary Colonel R. A. Lennie, T.D., retired (Honorary Colonel of a Supplementary Reserve Unit), Lieutenant-Colonel J. Smith, O.B.E., T.D., R.A.M.C.

First Clasp to the Territorial Efficiency Decoration.—Lieutenant-Colonel F. J. G. Slater, M.C., T.D., Major J. W. L. Bain, T.D., R.A.M.C.

Territorial Efficiency Decoration.—Majors (Honorary Lieutenant-Colonels) R. D. Jones and C. M. MacQ. Murray, Major D. W. Davies, and Captains (Honorary Majors) I. H. Davies and R. G. P. Evans, R.A.M.C.

Medical News

Tuberculosis Educational Institute.—The institute is a body composed of representatives from the Joint Tuberculosis Council and the National Association for the Prevention of Tuberculosis. It organizes refresher courses for doctors, nurses, health visitors, social workers, and administrators, usually held at university centres. Intensive three-day clinical courses for doctors are held throughout the year at Cheshire Joint Sanatorium, Market Drayton; King George V Hospital for Diseases of the Chest, Godalming; and the Red Cross Sanatoria of Scotland (Tor-na-Dee and Glen o' Dee). Particulars of courses may be obtained from the secretary, Tuberculosis Educational Institute, Tavistock House North, Tavistock Square, London, W.C.1.

Singapore Paediatric Society.—The first paediatric society to be formed in Malaya is the Singapore Paediatric Society, which was established this month. Its objects are to advance the knowledge and practice of paediatrics and to promote child health. Membership is open to all doctors registered in the colony of Singapore or in the Federation of Malaya. Office-bearers are: president, Dr. G. Haridas; vice-president, Professor E. S. Monterio; hon. treasurer, Dr. W. Heng; hon. secretary, Dr. G. Keys Smith. Further information may be obtained from the honorary secretary at St. Andrew's Mission Hospital for Children, Singapore.

Society of Apothecaries of London.—The following officers of the society were elected this month for the ensuing year: *Master*, Sir Wilson Jameson; *Senior Warden*, Brigadier E. M. Townsend; *Junior Warden*, Dr. H. Seaward Morley. Sir Wilson Jameson was formerly Chief Medical Officer of the Ministries of Health and of Education. Before the last war he was dean and professor of public health at the London School of Hygiene and Tropical Medicine. Brigadier Townsend qualified with the diploma of the society in 1915. He served with distinction in the 1914–18 war, and after a period in private practice he rejoined the R.A.M.C. with a regular commission. Dr. Seaward Morley is senior physician to the Royal West Sussex Hospital, Chichester.

New Journal of Obstetrics and Gynaecology.—A new monthly journal, *Obstetrics and Gynecology*, is to make its appearance next January. It is sponsored by the American Academy of Obstetrics and Gynecology, and will be edited by Dr. Ralph A. Reis with the support of a board of assistant editors. It will publish original articles, reviews, clinical notes, editorials, and book reviews. The publishers are Paul B. Hoeber Inc., of New York, and the annual subscription is $14.00.

Food for Children.—A useful pamphlet, *Diets for Babies and Children in Health and Sickness*, has just been issued by the National Baby Welfare Council. It is written by the senior dietitian of the Hospital for Sick Children, Great

Ormond Street. It deals with weaning, diets for normal children, and diets for sick children. Copies cost 7½d. (post free), and may be obtained from the Welfare Council's offices at 31, Gloucester Place, London, W.1.

Channel-swimming Doctor.—At the age of 61 Dr. George Brewster has just made his fifteenth attempt to swim the Channel. He started from Gris Nez, but after being in the water for 4½ hours had to abandon the attempt.

NEW ISSUES

British Journal of Ophthalmology.—The next issue of this journal (Vol. 36, No. 9) will be available in a week's time. The principal contents include:

OBSERVATIONS ON THE CHOROIDAL CIRCULATION. Norman Ashton.

HEXAMETHONIUM AND GLAUCOMA. A. J. Cameron and R. A. Burn.

VITREOUS CYST WITH RETINITIS PIGMENTOSA: A NEW SYNDROME? J. W. Wagenaar.

A CLINICAL METHOD OF OBSERVING CHANGES IN THE RATE OF FLOW OF AQUEOUS HUMOUR IN THE HUMAN EYE. PART II: IN GLAUCOMA. Douglas Langley and R. K. Macdonald.

OPTIC ATROPHY WITH ALTITUDINAL HEMIANOPIA IN NEUROFIBROMATOSIS. B. Sheehan.

MEASUREMENT OF RESISTANCE TO AQUEOUS FLOW BY THE ELECTRONIC TONOMETER. R. Weekers and E. Prijot.

CYCLODIALYSIS COMBINED WITH POSTERIOR TREPHINING. H. J. Flieringa.

INSERTION OF SUPERIOR OBLIQUE WITH SUPERIOR RECTUS MUSCLE. I. Lloyd Johnstone.

ACTINOMYCOSIS OF CANALICULI, WITH ONE CASE OF INVASION OF TISSUE. J. Gibson Moore.

HYPERMETROPIA AND MYOPIA IN DIABETES MELLITUS. I. Sacks.

Issued monthly; annual subscription £4 4s., single copy 8s. 6d.; obtainable from the Publishing Manager, B.M.A. House, Tavistock Square, London, W.C.1.

COMING EVENTS

General Practice on Television.—A television documentary programme entitled "Family Doctor" will be transmitted on Wednesday, September 3, from 9.25 p.m. to 10.25 p.m. The script is by Dr. Cormac Swan, assistant editor of the B.M.A.'s popular health magazine *Family Doctor*, and Robert Barr, who is also producer. The programme shows the life and problems of a general practitioner to-day.

Veterinary Congress.—The seventieth congress of the British Veterinary Association will be held at Harrogate from September 7 to 13. Papers on "Q fever (the domestic animal as a source of infection to man)" and "Modern insecticides and ectoparasite control" are among those included in the programme. Further details may be obtained from the British Veterinary Association at 36, Gordon Square, London, W.C.1.

Congress of Physiotherapy.—Medical practitioners will be welcome at the annual congress of the Chartered Society of Physiotherapy, which is to be held from September 18 to 21 at St. Pancras Town Hall, Euston Road, London, N.W.1. The programme includes lectures on problems of adaptation (Dr. T. F. Main), restoration of function after joint injury and disease (Dr. A. T. Richardson), the care of the injured hand (Mr. R. Guy Pulvertaft), rationale of physiotherapy in vertigo and facial palsy (Mr. Terence Cawthorne), and the elderly patient (Dr. William Morton). The founder's lecture on "The Treatment of the Rheumatic Diseases" will be given by Dr. W. S. C. Copeman. There will also be films, visits to hospitals, demonstrations (including one on the therapeutic use of ultrasonics), a dinner, and a reception and dance. Tickets (price two guineas for the whole congress, or 4s. 6d. for a single lecture) and further information may be obtained from the Chartered Society of Physiotherapy, Tavistock House (South), Tavistock Square, London, W.C.1.

Postgraduate Courses in Physical Medicine.—The British Association of Physical Medicine is proposing to hold a postgraduate course in physical medicine at various London hospitals on Saturday mornings during October, November, December, and January. In addition, if there is sufficient support from provincial members, a week-end course will be arranged at the end of January or beginning of February, 1953. The fee for the Saturday morning course will be £3 3s. and for the week-end course £2 2s. Those intending to take part should apply to the honorary secretary of the Association, 45, Lincoln's Inn Fields, London, W.C.2, by September 15, stating the course in which they are interested.

Psychiatry Courses.—The Institute of Psychiatry will again be holding courses for first- and second-year students at the Maudsley Hospital, starting on October 6. Details of the syllabus may be obtained from the Institute, Maudsley Hospital, Denmark Hill, London, S.E.5.

King's College Hospital Medical School.—The annual dinner of past and present students of the school will be held at the Savoy Hotel (Embankment entrance), London, W.C., on Saturday, October 4, at 7 for 7.45 p.m.

London Hospital Old Students' Dinner.—Notices of this dinner on October 9 have now been sent to all Old Londoners whose addresses are known. Any who have not received one should communicate with the secretary, London Hospital Medical College, Turner Street, E.1.

APPOINTMENTS

DUFF, R. S., M.B., F.R.F.P.S., M.R.C.P., Research Assistant Professor of Internal Medicine, College of Medicine, State University of Iowa and University Hospital, Iowa City, U.S.A.

LIVERPOOL REGIONAL HOSPITAL BOARD.—*Assistant Senior Medical Officer to Board's Headquarters Staff*, J. B. L. Farquhar, M.R.C.S., L.R.C.P., D.P.H. *Consultant Chest Physician to St. Helens Area*, J. B. H. McArthur, M.B., B.S., M.R.C.P.Ed.

PORTNOY, BENJAMIN, M.D., Consultant Dermatologist to Manchester and Salford Hospital for Skin Diseases, Davyhulme Park, Eccles and Patricroft, Hope, Ladywell, and Manchester Jewish Hospitals, Manchester Regional Hospital Board.

REES, VIVIAN E., M.R.C.S., L.R.C.P., Registrar, Department of Anaesthetics, Royal Victoria Hospital, Newcastle-upon-Tyne.

BIRTHS, MARRIAGES, AND DEATHS

BIRTHS

Baker.—On August 11, 1952, to Dr. Hazel (formerly Hill), wife of Mr. T. A. C. Baker, M.A., of Wednesbury, Staffs, a second son—Richard Henry.

Brown.—On August 12, 1952, at Bedford, to Dr. Gwyneth (formerly Watkins), wife of Dr. J. A. Brown, a daughter.

Davidson.—On July 24, 1952, at Mananga, Swaziland, to Gwladys, wife of W. G. Davidson, M.D., D.T.M.&H., a daughter.

MacDonagh.—On August 13, 1952 at Grimsby Maternity Hospital, to Fay (formerly Cull) M.B., wife of Dr. F. M. MacDonagh, a daughter.

Neill.—On August 19, 1952, at Queen Charlotte's Hospital, London, W., to Jean, wife of Keith Neill, M.B., Ch.B., of New Zealand, a daughter—Barbara Jane.

Parkinson.—On August 19, 1952, at Luton, to Pat (formerly Bushby), wife of Dr. Thomas Parkinson, a son.

MARRIAGES

Howie—Glasgow.—On July 23, 1952, Surgeon Lieutenant Alastair C. Howie, M.B., Ch.B., R.N., to Jemima T. T. Glasgow.

DEATHS

Bond.—On August 22, 1952, at Little St. Johns, Collington Avenue, Bexhill-on-Sea, Sussex, Eleanor Cecilia Bond, M.D., late of Bournemouth, Hants, aged 86.

Cutts.—On August 18, 1952, at St. Mary's Hospital, London, W., John Geoffrey Cutts, M.R.C.S., L.R.C.P., of Hatch End, Middlesex, formerly of Nottingham

Harding.—On August 20, 1952, at 206, Wellington Road, Bush Hill Park, Enfield, Middlesex, Henry William Harding, M.D., D.P.H., aged 82.

Keyes.—On August 20, 1952, at Harrogate, Yorks, Muriel Keyes, L.R.C.P.&S.Ed., L.R.F.P.S.

Mautner.—On August 18, 1952, Francis Mautner, M.D., of 230A, Savile Park Road, Halifax, Yorks, aged 56.

Moreton.—On August 20, 1952, at Tarvin, Cheshire, Thomas William Earl Moreton, M.R.C.S., L.R.C.P., aged 88.

Reade.—On August 17, 1952, at Headlams, Ipsden, Oxon, Arthur George Lawrence Reade, O.B.E., V.R.D., M.R.C.S., L.R.C.P., Surgeon Captain, R.N.V.R., retired.

Tangye.—On August 20, 1952, at his home, "Andennis," St. Mawes, Cornwall, Claude Edward Tangye, C.B.E., M.D., D.P.H., aged 74.

Taylor.—On August 23, 1952, Cedric Rowland Taylor, O.B.E., M.D., of 20, Egerton Road, Bournemouth, Hants, late of Bridlington, Yorks, aged 64.

Any Questions?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions, which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

Chronic Constipation

Q.—*Generally speaking, is it best when treating chronic constipation to stick to one laxative, or is it better to change from time to time? Is there any objection to prescribing two phenolphthalein compound tablets nightly for long periods?*

A.—Most cases of chronic constipation belong to the group called dyschezia by Sir Arthur Hurst. The rectum always contains faeces, and the normal reflex which should be initiated by the entry of faeces into the rectum does not take place. The use of purgatives for long periods tends to perpetuate the condition and may lead to a chronic enteritis. The patient should be given a diet containing an adequate amount of fluid and roughage and should be gradually weaned from his purgative. He should try to have a motion at the same time each day in unhurried surroundings and thus re-educate his bowel rhythm. Small doses of liquid paraffin given three times a day may help. This is, however, long-term policy and is not always successful.

If purgatives must be used regularly the least objectionable are the saline group, since they act by osmotic processes and are not irritant. Their drawback is a tendency to produce fluid motions, but this can usually be obviated by administering repeated small doses—for example ½ oz. (14 ml.)—of magnesium hydroxide mixture three or four times a day. Phenolphthalein compound tablets contain phenolphthalein, aloin, strychnine, and belladonna. The first two constituents are both irritants to the gastro-intestinal tract, chiefly to the large intestine. The main objection to their continued use is their liability to set up a chronic colitis. If there is no evidence of this and a dose of two tablets continues to be effective the objections are the general objections to purgatives stated above. Phenolphthalein may cause a fixed drug eruption, but this is uncommon. A change to other purgatives of the irritant group—for example, colocynth and hyoscyamus pill—would be without advantage.

Long-acting Seasickness Remedy

Q.—*Is it practicable to combine hyoscine with an antihistamine, and does this lead to better results in seasickness than with either remedy alone?*

A.—Combinations of hyoscine with antihistamine substances are safe, but they are probably not more effective against seasickness than hyoscine alone. Under certain circumstances, however, there may be a reason for combining hyoscine with promethazine hydrochloride ("phenergan"), since hyoscine has an almost immediate action while phenergan, though it is absorbed very slowly, remains effective longer. Thus, if a rapid but prolonged effect was required from a single dose, it would be advisable to give 0.6–1 mg. of hyoscine hydrobromide with 25 mg. of phenergan. In spite of its slow action, moreover, phenergan is less likely to have a cumulative toxic effect than hyoscine, and for this reason it might be recommended that patients requiring continued treatment for seasickness should be given hyoscine for the first 24–48 hours (when the most potent effect is desired), and then 25 mg. of phenergan once daily before rising. If such treatment with phenergan does not completely eliminate seasickness, single doses of 0.6–1 mg. of hyoscine can be given whenever vomiting threatens.

Diphenhydramine hydrochloride ("benadryl") and diphenhydramine - 8 - chlorotheophyllinate ("dramamine") have identical pharmacological actions. They are comparatively ineffective seasickness remedies, and there can be little reason for wishing to combine them with hyoscine.

Membranous Dysmenorrhoea

Q.—*A woman, aged 30, has suffered from membranous dysmenorrhoea since adolescence. The condition has worsened following one pregnancy which resulted in a stillbirth. What is the modern explanation of this condition? Does it militate against pregnancy, and, if so, what treatment is indicated?*

A.—True membranous dysmenorrhoea is rare, and if there is any doubt the diagnosis could be confirmed by histological examination of the "membrane" passed during menstruation. This investigation would in any case be of scientific interest.

The pathogenesis of the condition is unknown. Beckwith Whitehouse long ago suggested that an excessive decidual reaction due to an overactive corpus luteum makes the surface endometrium so compact that it will not easily disintegrate, but this view is now doubted. An excessive production of progesterone in these cases has never been demonstrated, and the condition cannot be produced experimentally by administering this hormone. Moreover, J. L. Wodon and R. Cordier (*Gynaecologia (Basel)*, 1948, **126**, 261) failed to find evidence of an excessive decidual reaction. They conclude that the underlying trouble is overdevelopment and engorgement of the endometrium premenstrually, with a corresponding greater amount of tissue being shed during menstruation. Whatever be the exact histological changes, however, it seems likely that the fault lies in the inherent sensitivity of the endometrium to the hormone stimulus rather than to any abnormality in hormone production.

Membranous dysmenorrhoea does not as a rule interfere with conception and pregnancy, nor is it influenced in any way by childbearing. It tends to be refractory to all forms of treatment including curettage. Methyl testosterone, 5 mg. sublingually twice daily from the end of one period to the beginning of the next, may help, but should not be continued for longer than two months at a time because of possible side-effects. Ergotamine tartrate by mouth for five days premenstrually is also advised, the object being to produce vasoconstriction in the endometrium.

Electric Fences

Q.—*Is electric fencing dangerous to humans?*

A.—There is no danger from fences constructed according to the specification laid down by the British Standards Institution. This specification (No. 1222) lays down that fences shall be run off a nominal 6-volt accumulator (8 volts is mentioned in the specification to cover the voltage of a freshly charged accumulator). The fences are not continually live, and the current is applied in a series of pulses with an output limited to 3 millicoulombs. Although the shock received from an electric fence is not exactly pleasant—rather like that from the sparking-plug of a car or a shocking-coil—there is no question of the victim being held in continuous contact, because of the appreciable interval between each pulse. As an additional safeguard the British Standard requires labels inscribed, "Danger—Electric Fence," to be hung on the fences at intervals to warn the public. In England there are probably somewhere near a quarter of a million of these fences, and in America many more. Experience of their use has confirmed their harmlessness to man.

Chronic Erosive Balanitis

Q.—*What are the causes and treatment of chronic erosive balanitis? Is circumcision indicated?*

A.—Erosive balanitis is due to a mixed infection in which many forms of organism, including spirochaetes (but not those of syphilis), are found. It may occur in patients with depressed local or general health, and constitutional treatment may be useful. Local sources of irritation in the urine, such as phosphaturia and excessive urates, should also be eliminated. A cure cannot be guaranteed by circumcision,

but, if the drainage of pus from the glans penis is not free, this, or a dorsal slit, should be carried out. If pus is not being retained reliance should be put on penile baths and syringing behind the prepuce with mild antiseptics, such as permanganate of potash and peroxide of hydrogen. Even if circumcision is not carried out better drainage may be more easily secured by a dorsal slit. Any prolonged irritation in an elderly man carries with it some risk of epithelioma. This should be taken into consideration in deciding whether to carry out a circumcision or not, since epithelioma almost always occurs only among the uncircumcised. *X* rays should not be used.

Pre-coital Douches and Conception

Q.—*Is it true that pre-coital douches of bicarbonate of soda were at one time used to favour conception, on the assumption that an excessively acid vaginal secretion is injurious to the spermatozoa? If so, were they effective?*

A.—Pre-coital douching with bicarbonate has been advocated as an aid to conception; a further elaboration has been the use of isotonic glucose-Ringer solution for the same purpose. The physiological basis for this practice is very doubtful. The healthy vagina is highly acid (*p*H 4 to 4.5), and spermatozoa remaining within it are quickly killed; in spite of this, conception occurs in the normal female because proper coitus with a fertile male is followed by the rapid penetration of numerous spermatozoa into the cervical mucus, which is alkaline and within which they survive for long periods. Although it has been supposed that the presence of alkaline isotonic fluid within the vagina at the time of intercourse would facilitate sperm penetration into the cervical mucus, no convincing evidence in support of this has been adduced. A basic objection to tampering with the vaginal *p*H is the risk of encouraging the growth of pathogenic organisms which cannot survive at the normal low *p*H and thereby setting up a vaginitis. Indeed, a useful method of treating non-specific vaginitis is the introduction of jelly buffered to a *p*H of approximately 4. In view of the lack of proof of the efficacy of alkaline pre-coital douching, and of the potential harm of the practice, it cannot be recommended.

Injury and the Onset of Diabetes

Q.—*A few days after a fall of 25 ft. (7.6 m.), when the legs were badly bruised but the skull was uninjured, a man of 38 developed polyuria, thirst, and gradually increasing loss of weight. Investigation in hospital showed him to be suffering from diabetes mellitus (typical blood sugar curve). He has been a patient of mine for three years, and has never previously had any symptoms or signs of diabetes, and there is no family history of the disease. Is there any known relationship between physical injury or shock and the development of diabetes?*

A.—It is generally agreed that, although there may be a history of physical injury or shock prior to the discovery of diabetes, this disease is rarely, if ever, the direct result of such injury unless there has been direct trauma to the brain or the pancreas itself. Injury may, however, aggravate an existing diabetes and therefore be the cause of its recognition.

Streptococcal Glossitis and Geographical Tongue

Q.—*What is the differential diagnosis and treatment of streptococcal glossitis?*

A.—Streptococcal glossitis is a dubious entity, and the pictures figured in the textbooks would serve better for the condition of geographical tongue. This is a benign condition characterized by white patches on the tongue which change daily in configuration and resemble the land outlines of a map. It is hard to have the strength of mind to refuse to treat the condition, especially when it is seen in a child, as is so often the case, but it is harmless and constitutional. The worrying parents are distressed if nothing is done, and yet nothing should be done.

Elastic Stockings

Q.—*Please indicate the relative advantages of, and indications for, the various kinds of elastic hosiery available under the N.H.S.—namely, one-way stretch hosiery, two-way stretch elastic net hosiery, two-way stretch lastex yarn hosiery, and two-way stretch rubberless hosiery. How do they compare in cost?*

A.—It is difficult to give entirely satisfactory answers to some of these questions about elastic stockings. Naturally there is some variation in the retail prices of stockings of the same type made by different firms. The following is a list of Ministry of Health prices for thigh-length stockings to which the various firms under contract to the Ministry conform: one-way stretch, seamless, per pair, 74s. 6d.; one-way stretch, seamed, 106s. 6d.; two-way stretch, 53s.; elastic net, 38s.; and rubberless, 60s. There are a number of other shorter varieties of stocking which cost correspondingly less, and details of these can be obtained from the various firms or the Ministry of Pensions.

With regard to the indications for use of the various types, it can be said that the one-way stretch stocking exerts the greatest concentric pressure on the limb, and is indicated in those cases requiring maximum support—for example, those with a tendency to marked oedema. The seamed variety of one-way stretch stocking can, of course, be more accurately fashioned to the limb.

Two-way stretch stockings conform fairly easily to the limb and are mainly indicated in those cases requiring comfortable support without the need for really strong pressure. Some patients find that this type of stocking tends to become too stretched after a month or so.

Elastic net stockings are extremely light and well-ventilated and are of especial value where overheating of the limb is to be avoided. Generally speaking they do not give such firm support as the first two types mentioned and are more readily stretched.

The only definite indication for rubberless hosiery is in those patients who show an intolerance to rubber. The writer has little experience of this type of stocking and cannot say how well it wears in use.

Haemoglobin Estimations in the Antenatal Clinic

Q.—*What is the most suitable method of haemoglobin estimation for use in a small antenatal clinic in general practice?*

A.—The most suitable method for haemoglobin estimation in any small clinic is the oxyhaemoglobin procedure with the M.R.C. photometer. (For a full description see King *et al.*, *Lancet*, 1948, **2**, 971.)

Undescended Testis

Q.—*Where can I find information on how long to wait for the testicles to descend before advising operation?*

A.—On p. 59 of the book "*Any Questions?*" The book can be obtained for 7s. 6d. (postage 6d.) from the Publishing Manager, B.M.A. House, Tavistock Square, W.C.1.

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